Thames Water

Our final plan

Our Drainage and Wastewater Management Plan 2025-2050

Technical Appendices
Appendix V – Customer Engagement: Part B, Final DWMP

May 2023

Preface

We're proud to present our first Drainage and Wastewater Management Plan (DWMP) and encouraged by the level of positive feedback we've received. Over the last four years, we've engaged and worked collaboratively with around 2,000 of our customers and stakeholders, to deepen our shared understanding and develop new ways to manage drainage and wastewater across our region. We illustrate our DWMP Cycle 1 and its headlines below.
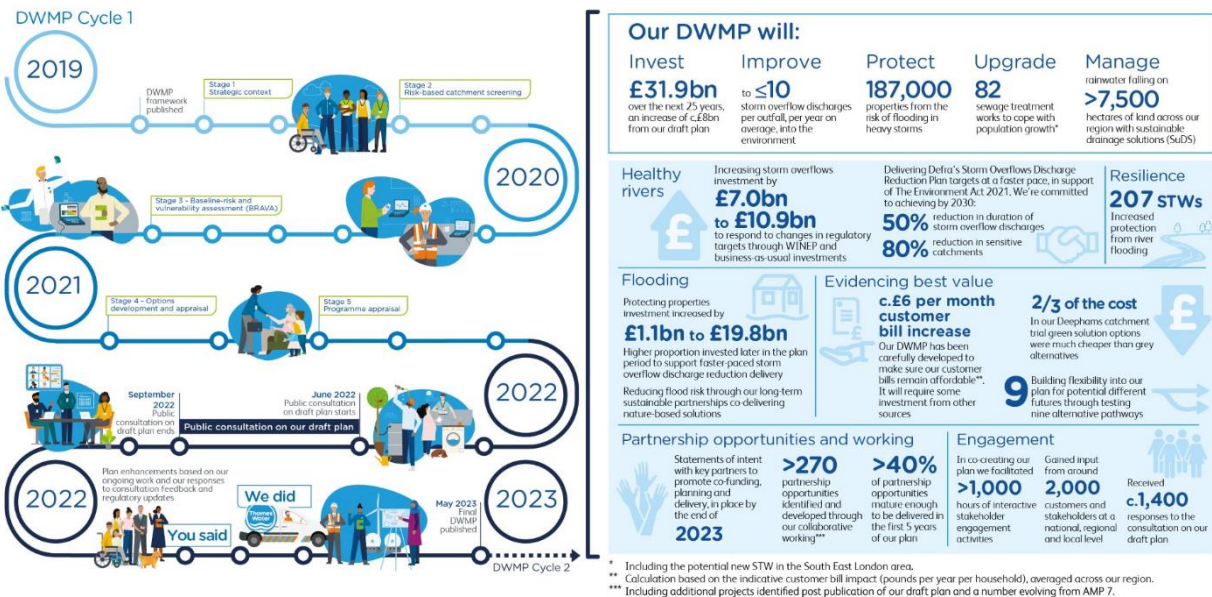

We've progressed and enhanced our DWMP since we published it for public consultation in June 2022. We were pleased to receive lots of positive comments and support on the quality and ambition of our draft plan as well as useful ideas for making our final DWMP even stronger.

We've updated our draft plan based on our ongoing DWMP work, regulatory updates and our responses to the consultation feedback wherever possible*. Our updates include providing more detail where you felt it was needed and creating new appendices to answer technical queries. For more details on how we've progressed our final plan and responded to the consultation feedback, please see our Non-technical summary and You said, We did Technical appendix.

* Some public consultation feedback didn't require further action or wasn't relevant to the DWMP process. Other feedback was relevant to future DWMP planning cycles and will be used to inform this work.

Navigating our documents

To help you navigate around our final DWMP document suite and find where key DWMP content features, we've placed a Navigation index at the back of this document.
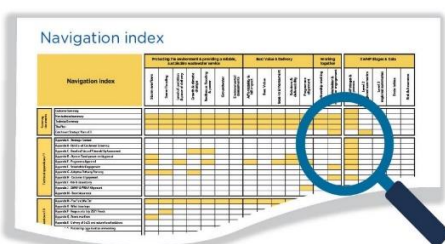
Introduction

Our DWMP Customer Engagement has been completed in two parts;

- Part A (Technical Appendix H) – customer research completed during the development of our draft DWMP in 2021, and
- Part B (this document) – customer research completed during the consultation period in 2022

The customer research ran in parallel to the DWMP consultation period (July – September 2022) and built on the previous work to measure customer support for the preferred plan, particularly in relation to the ambition of the plan targets and the balance of the plan in terms of the resilience, flooding and environment outcomes along with affordability to customers. The purpose of the research was to understand customer views on the DWMP in order to quantify the level of support for the plan, in terms of:

- Acceptability of the current preferred plan; and
- Preference for the current preferred plan versus alternative plans that set out either a more ambitious (enhanced plan) or a less ambitious (reduced plan) set of targets.

The research involved design, testing, implementation, and analysis of a customer survey. Two variants of the survey were developed: one for household customers and a second for non-household customers, reaching a sample size of 1,004 household customers and 300 non-household customers. The sampling approach reflected the research objective to provide segmented results for the London and Thames Valley areas.

The findings from the customer research have supported the post-consultation review of the final plan ahead of its submission in May 2023.

Drainage and Wastewater Management Plan - Customer Research

Technical Report

Thames Water

October 2022

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Disclaimer

This report has been prepared in accordance with our Proposal dated 22nd June 2022 and agreed revisions to it. We are reliant on the information provided by you, that is available in the public domain and that we collected for the purposes of this project. While we have endeavoured to provide accurate and reliable information, we are not responsible for the completeness or accuracy of any such information. This report is intended solely for the information and use of Thames Water and is not intended to be, and should not be, used by anyone other than the specified parties. eftec, therefore, assumes no responsibility to any user of this document other than Thames Water.

Document evolution

Technical report	06/10/2022	Reviewed by Allan Provins

This report is based on eftec's Version 3 – January 2021 report template.

Executive summary

Introduction

Thames Water is preparing a Drainage and Wastewater Management Plan (DWMP) that will set out how the drainage and wastewater system in the region will be maintained and improved over a 25-year planning horizon (2025 – 2050). It will be published ahead of the PR24 Business Plan and will be an essential part of the case for investment in the wastewater network that will be put forward at the next Price Review. The findings from the customer research have supported the post-consultation review of the final plan ahead of its submission in May 2023.

This report summarises the approach, method, analysis and findings from quantitative research that examined customers' preferences for the DWMP.

Research approach

The objective of the research was to understand customer views on the DWMP in order to quantify the level of support for the plan, in terms of:

1. Acceptability of the current preferred plan; and

2. Preference for the current preferred plan versus alternative plans that set out either a more ambitious (enhanced plan) or a less ambitious (reduced plan) set of targets.

The research involved design, testing, implementation, and analysis of a customer survey. The customer survey was developed through an iterative test and re-test approach using one-to-one cognitive interviews and a pilot survey. Two variants of the survey were developed: one for household customers and a second for non-household customers. Each variant featured two versions – London or Thames Valley – structured to introduce the main aspects of the DWMP to respondents, including the targets and associated outcomes and customer bill impact, before asking whether the plan was acceptable and the preferred plan amongst alternatives.

Good practice procedures for customer research were followed and the study took account of Ofwat's expectations for high-quality research as detailed in their February 2022 Customer Engagement Policy position paper. The sampling approach reflected the research objective to provide segmented results for the London and Thames Valley areas. The survey was implemented with representative samples of household (n = 1,004) and non-household customers (n = 300).

The overall survey results, respondent feedback, and findings from the survey testing stage indicate that customers engaged well with the survey content, understood the plan support

questions, and provided considered responses.

Main findings

The key findings are as follows:

- Overall, a good level of support for the preferred plan was found, both in terms of its acceptability (>60%) and the preference for it over alternative scenarios, where it was on balance the most preferred option.

- Moreover, a broader perspective shows that combined support for the preferred plan or for a greater level of action though an enhanced plan (~70%) outweighed the sentiment for a reduced scope of plan (~30%). Notwithstanding the overall positive results and support for the preferred plan, affordability was a key concern for a relatively small proportion of customers (<10%).

- It is evident, however, that there is mixed view from customers as to what the most important challenges are for the plan to address. Support for eliminating spills was not universal, particularly if at added cost or at the expense of other investments. Wider responses showed that reducing flooding and protecting the river environment over the longer term from day-to-day discharges from works are also viewed as important targets, and in aggregate ranked higher than reducing spills.

- There is high level of support for the use of new solutions that involve building partnerships.

The overall sentiment of the plan is summarised in Figure ES.1. The study findings suggest that a balanced plan making progress across flooding, resilience, STW upgrades and spills would likely best meet customer expectations in the round, rather than an initial all out focus on any particular challenge that would be to the detriment of other needs identified in the DWMP process.

Conclusion

The survey content was developed from the DWMP consultation documents. Pre-testing and independent review informed the revisions and improvements to explanatory materials to ensure that they were clear, easily understood and neutral in presentation. The household sample was representative of the wastewater customer base, reflecting the circumstances of customers in the London and Thames Valley areas. The non-household sample reflects a cross-section of businesses and organisations across the region.

Respondent feedback indicated that the survey was well-received. It was found to be informative, understandable and straightforward to complete. Overall, respondents were engaged in the topic and gave considered responses.

The wider context to the research – national media focus on the drought and spills – likely

enhanced its relevance in respondents' minds, with "front-page coverage" of extreme events and the health of the water environment providing very tangible examples of the types of strategic issues being addressed by the DWMP.

More action needed (<10% of sample)	Desire for a more ambitious plan was limited, in terms of those who preferred a fast pace of investment and also opted for the enhanced plan.	• More likely to have higher income. • More likely to say that the wastewater system should be improved to remove all storm overflows. • More likely to accept an additional bill increase or a reduction in flooding investment to meet more stringent spills targets.
Mixed views on pace and spills but plan generally acceptable (~80% of sample)	The majority of respondents had more mixed views on pace and the balance between spills, flooding and bill impact, but generally supported the preferred plan (~70% accepted the plan).	• More likely to have a current combined wastewater and water bill amount less than £450 per year. • More likely to choose the preferred plan. • Acceptability of preferred plan for this group is around 70%.
Unaffordable (<10% of sample)	Cost - not ambition – is the main reason why the plan is not acceptable to some. This was key concern for a minority of customers.	• More likely to choose the reduced plan compared to the "average" respondent. • More likely to choose the steady pace of investment. • Mainly SEG DE and C1C2 respondents (esp. London).

Figure ES.1 Overall customer sentiment on the plan

Contents

1. Introduction

Setting the scene

- Drainage and wastewater services in the Thames Water region face many different challenges now and continuing into the future from the changing climate, changing weather patterns, population growth, and growing demand for environmental protection.

- To meet these challenges, Thames Water is working in partnership with stakeholders to develop a long term plan - the Drainage and Wastewater Management Plan (DWMP) - to ensure a resilient and sustainable wastewater service for the next 25 years for London and the Thames Valley region. This new approach has been jointly developed by regulators and industry bodies including Ofwat, Defra, the Environment Agency, the Consumer Council for Water, and Water UK (representing the UK water companies).

- The DWMP will be published in 2023 and will be a long-term plan that identifies the actions needed to make sure that Thames Water can continue to deliver its services reliably and in a sustainable way, whilst also achieving improvements for customers, communities, and the environment.

1.1 Background

Thames Water is preparing a Drainage and Wastewater Management Plan (DWMP) that will set out how the drainage and wastewater system in the region will be maintained and improved over a 25-year planning horizon. It will be published ahead of the PR24 Business Plan and will be an essential part of the case for investment in the wastewater network that will be put forward at the next Price Review.

Thames Water carried out research with customers in 2021 to understand their priorities and views on potential options for the DWMP. Findings from the research supported the development of the preferred plan via Thames Water's investment appraisal process. This study built on the previous work to measure customer support for the preferred plan, particularly in relation to the ambition of the plan targets and the balance of the plan in terms of the resilience, flooding and environment outcomes along with affordability to customers.

The study ran in parallel to the DWMP consultation period (July – September 2022) and this report summarises the methodological approach and main findings. The findings from the customer research have supported the post-consultation review of the final plan ahead of its submission in May 2023.

1.2 Research aims and scope

The objective of the research was to understand customer views on the DWMP in order to quantify the level of support for the plan, in terms of:

1. Acceptability of the current preferred plan; and

2. Preference for the current preferred plan versus alternative plans that set out either a more ambitious

(enhanced plan) or a less ambitious (reduced plan) set of targets.

The research was implemented as an online survey in August - September 2022, with a representative sample of wastewater services customers (bill payers), covering both households and non-households and segmented by the London and the Thames Valley operational areas. Good practice procedures for customer research were followed and the study took account of Ofwat's expectations for high-quality research as detailed in their February 2022 Customer Engagement Policy position paper (see Appendix 1).

The scope of the research and content of the survey were aligned with key aspects of the DWMP consultation themes (see Table 1.1).

Table 1.1: **High-level mapping of customer research to DWMP consultation themes**

DWMP consultation themes	Customer research - content
Range of plans (London/Thames Valley)	Support for the preferred plan (targets/outcomes and bill impact) Preference for the preferred plan vs. alternatives
Planning objectives	Prioritisation of plan targets/outcomes Balance between flooding and environment/spills
Solutions	Support for the new solutions (surface water management targets)
Partnership solutions	
Trade-offs	Pace of investment (timing, certainty and ambition) (unconstrained)
Stakeholder engagement	N/A

1.3   Research context

The results from this study provide a snapshot view of customer sentiment and support for the DWMP. Prior to asking the questions concerning support for the plan and preference amongst alternative plans, customers who participated in the research were presented with a range of information describing the plan targets and associated income, types of solution and pace of investment, and the bill impact for customers. Various accompanying questions were asked in step with the provision of this information that were intended to prompt respondent thinking and highlight some of the key trade-offs faced in developing the plan for the region.

The research also reflects the wider context in which it was carried out, particularly in relation to the circumstances of households and the short to mid-term prospects for the economy. Prior to the survey launch in August 2022, there was considerable focus in national and local media on the prolonged dry weather and the occurrence of several extreme heat events in mid-June, mid-July, and early-August. A drought was declared across the South East of England in early August[1] and hosepipe bans were announced by several water companies, including Thames Water[2], prior to the main survey fieldwork

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[1] See: https://www.gov.uk/government/news/environment-agency-chairs-national-drought-group-as-parts-of-country-move-into-drought (accessed October 2022).

[2] See: https://www.thameswater.co.uk/help/water-restrictions/legal-notice (accessed October 2022).

launch.

Towards the end of August, attention shifted to the operation of sewer overflows by companies, which were headline news for several days during the survey fieldwork following heavy rainfall events[3] and subsequently the publication of the Storm Overflows Discharge Reduction Plan by the Government[4]. This was a continuation of the greater national attention that overflows had been attracting throughout 2022.

All of this was set against the economic backdrop of the "cost of living crisis" with rising inflation and rapidly increasing energy prices – driven by the 2021 post-Covid pandemic increase in demand and the impact of the 2022 Ukrainian conflict on supply - and forecasts for significant continuing pressures on household budgets for autumn / winter and 2023.

1.4   Report structure

The structure of this report is as follows:

- **Section 2** provides an overview of the research methodology, survey design and testing, the survey structure and content, and the sampling approach.

- **Section 3** presents the household and non-household sample profiles.

- **Section 4** presents the study results, covering respondents' awareness and attitudes, support for the plan, and feedback.

- **Section 5** provides a summary of the key findings and conclusions from the research.

The report is accompanied by the following supporting annexes:

- **Appendix 1**: PR24 customer research principles

- **Appendix 2**: Summary of the survey testing

- **Appendix 3**: Household survey

- **Appendix 4**: Non-household survey

- **Appendix 5**: Onscreen appearance and layout of the survey

- **Appendix 6**: Summary statistics

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[3] See for example: https://www.theguardian.com/environment/2022/aug/17/beachgoers-warned-to-stay-away-after-sewage-alerts-across-england-and-wales (accessed October 2022).

[4] See: https://www.gov.uk/government/publications/storm-overflows-discharge-reduction-plan (accessed October 2022).

2. Approach

Summary

- The customer survey was developed through an iterative test and re-test approach using one-to-one cognitive interviews and a pilot survey. A draft version was reviewed by CCW.

- Two variants of the survey were developed – for household customers and non-household customers – structured to introduce the main aspects of the DWMP to respondents, including the targets and associated outcomes and customer bill impact, before asking whether the plan was acceptable and the preferred plan amongst alternatives.

- The sampling approach reflected the research objective to provide regionally representative results regarding water service customers in the Thames Water region.

2.1 Survey design and testing

The research for the DWMP was centred around a survey-based approach which was developed with input from Thames Water and Atkins[5]. Survey questions aimed at revealing respondent acceptability of the plan and their priorities. Customer support for the DWMP was asked in terms of acceptability of the plan subject to its impact on customer bills, and their preference between alternative plans.

Draft survey materials (a questionnaire and explanatory content about the DWMP) were reviewed by representatives from the CCW during the design and testing stage. Relevant amendments and changes were made following the feedback from CCW, including wording of questions and descriptions of plan targets.

2.1.1 Cognitive interviews

The initial survey content and material was developed and refined via an iterative testing process, which included one-to-one online cognitive interviews with a small sample of household customers. The interviews covered the main aspects of the survey content and material to gain respondent feedback on overall understanding of the survey, the ease/difficulty of completion, and perceived credibility. Findings from the cognitive testing process are summarised in Table 2.1 and further detail is provided in Appendix 2).

Overall, respondents understood what the survey was about and what they were being asked to do. The main changes made to the survey content were: (i) a revised and simplified layout for the comparative view of the preferred plan vs. alternatives; and (ii) adding information and reminders to the explanation of the bill impact and its timing (particularly to emphasise it would be for the period 2025-2050).

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[5] Data and information about the DWMP that informed the development of the survey materials came from two main sources: (i) DWMP consultation documents published online (https://www.thameswater.co.uk/about-us/regulation/drainage-and-wastewater-management) (accessed October 2022); and (ii) data provided directly by Atkins from the plan appraisal outputs.

Table 2.1: **Summary of key findings from cognitive interviews**

Subject	Key findings	Example feedback from respondents
Understanding	• Overall, respondents understood what the survey was about and what they were being asked to do.	"...evaluating investment plans for improvements to wastewater, sewer flooding, drainage and river overflows..." "...challenges water companies are facing such as population increase and climate change and the pressure that puts on the infrastructure"
Views on Thames Water consulting the public	• Overall, respondents thought it was important for Thames Water to talk to customers about priorities for the wastewater infrastructure. • However, there was some doubt as to how much respondents' answers would actually influence Thames Water's business plan, with several questioning whether the company would take any action as a result.	"They're actively seeking out the general public's views rather than just going ahead" "...it's being driven by what government needs and what regulators are demanding"
Ease of survey completion	• Everyone found the survey easy to understand and straightforward to complete.	"It was pretty easy to understand and the cards were quite well laid out" "I really like how the information was set out in the showcards"
Aspects of the DWMP	• Overall, respondents said that each element of the plan was clearly explained and that there was nothing in the attribute descriptions which were hard to understand.	"They were easy to understand and reasonably well set out; the content was succinct and there was little jargon" "They're all clearly laid out, with good formatting and presenting the issues and scenarios"
Ranking the DWMP targets	• While respondents said it was easy to rank the planned targets for the various elements of the plan, some found it challenging to make decisions about trade-offs.	"It's difficult to say which is least important as they are all important"
Acceptability of the DWMP	• Most respondents said the DWMP plan was 'acceptable' or 'completely acceptable', although respondents did caveat their response on the basis of increased bills.	"It's doing all the things it needs to do, but cost will be an issue for some people" "It's clearly necessary, although a lot of people won't be happy with the bill increase"
Preference between alternative plans	• In the second wave of interviews three out of four chose the current proposed plan as their most preferred.	"it's not trying to do anything too quickly" "it's delivering what's needed but takes longer"
General points	• There was unanimity that the both the survey in general, and the plan preference question specifically, were credible. • Although a couple of respondents felt survey was too long, most said it was fine, and suggested that it needed it to be as long because of the issues it was covering.	"It's got to cover certain aspects and has to go into enough detail; if there's not enough detail, people will complain" "...the amount of information is about right, too much and people won't read it"

2.1.2   Pilot survey

The survey was pilot tested with 100 household respondents to ensure the routing of the survey and data collection were functioning correctly. The initial results were in line with expectations. Some minor updates were made to the survey content, including adding an additional question about respondents' views on the DWMP on their level of confidence that plan would address future challenges for the wastewater system (from a growing population, changing climate, loss of green areas, and the need to protect the environment).

2.2   Survey structure and content

The structure of the survey is outlined in Table 2.2. The questionnaire was developed as a single survey with the household (see Appendix 3) and non-household (see Appendix 4) variants. Information about the DWMP targets was tailored to the respondent's region (Thames Valley or London). Appendix 5 shows the onscreen layout of the survey. The following describes the key content of each section.

Table 2.2: **Survey structure**

Section	Content
Section A	**Respondent screening and quotas** – specified to ensure regional representativeness of the sample.
Section B	**The plan** – information on the DWMP and the growing challenges it is addressing (climate, population, environment), along with warm-up questions concerning respondents' awareness of pressures and initial views on the plan targets and pace of investment.
Section C	**Support for the plan** – questions on the acceptability and preferred plan alongside reasons for the choices.
Section D	**Follow ups –** follow-up questions concerning respondent views on the plan, including potential for more stringent spill target(s).
Section E	**Respondent profile** – final set of questions to obtain information about the socioeconomic and demographic characteristics of household respondents or the organisational profile of the non-household respondents.
Survey close	Thank and close

2.2.1   Section A: Respondent screening and quotas

Household respondents were screened to sample only the "bill-payer" (joint or individual). Non-households were screened to ensure that the respondent was responsible (or jointly responsible) for their organisation's decision-making with respect to utilities. This section collected data on respondents, which was used for screening to ensure the regional representativeness of the sample.

2.2.2   Section B: The regional plan

The content of Section B focused on providing respondents with an overview of Thames Water's responsibilities for wastewater and drainage and then introducing key elements of the DWMP. The context for the DWMP was explained in terms of the growing challenges for the wastewater system in the region:
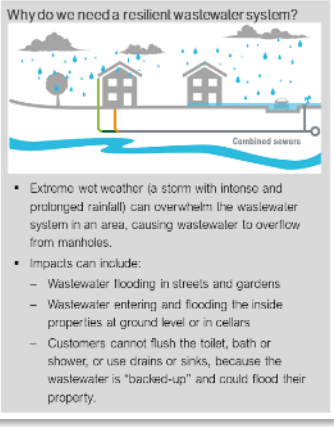
- Increasing population: The number of people living in the region is set to grow by over 2 million people by 2045;

- Climate change: Extreme weather events will become more frequent;

- Loss of green space: More rainwater entering the sewer network; and

- Protecting the environment: Treating more wastewater in the future and maintaining compliance with legal standards that protect river water quality.
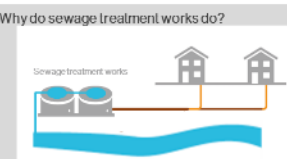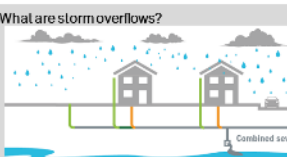
The explanation of the DWMP was broken down into five themes that aligned with the main plan targets:

- Resilient wastewater system;

- Protecting the environment (sewage treatment works upgrades);

- Reducing storm overflows;

- Reducing property flooding; and

- Increasing use of "new" solutions.

Each theme was explained on a showcard/screen that presented the DWMP target (in either London or the Thames Valley region), the current situation, and what would happen in the absence of the plan (i.e. a "do-nothing" scenario) (see Table 2.3). Supporting information was also provided on the associated outcomes for the target (e.g. impacts of sewer flooding, spills, etc.).

Table 2.3: **Onscreen explanatory material for the long-term plan (London region example)**

Theme	Showcard	Follow-up question(s)
Resilient wastewater system		How aware were you of the increasing risk in future from flooding from wastewater due to changing climate and weather patterns?

Theme	Showcard	Follow-up question(s)
Protecting the environment (sewage treatment works upgrades)	**Protect the environment** **What are the targets in the plan for the London area?** Upgrade sewage treatment works to cope with increased population to ensure continuing 100% compliance with environmental standards: 2030: 1 treatment work upgraded 2035: further 0 treatment works upgraded 2050: further 6 treatment works upgraded **What is the current situation?** 99.74% compliance across all sewage treatment works in 2021. **What would happen by 2050 without the plan?** Population growth will mean that many sewage treatment works – covering up to half the region - will not be compliant with environmental standards. **Why do sewage treatment works do?** Sewage treatment works - Sewage treatment works return treated wastewater to rivers. - The treated wastewater needs to meet legal standards for environmental quality that protect the long-term health of rivers and ensure they can support a variety of fish and wildlife. - Population growth in the region will mean that in the future more sewage will need to be collected and treated before safely returning it to rivers. - To cope with this, the capacity and level of treatment at works will need to increase to ensure that standards continue to be met.	How aware were you of the need to upgrade sewage treatment works in the region to ensure they continue to meet legal standards to maintain river water quality?
Reducing storm overflows	**Reduce storm overflows into rivers** **What are the targets in the plan for the London area?** Reduce the number of spills from each overflow: 2030: Fewer than 10 spills per year at the most sensitive sites* 2035: Fewer than 10 spills per year at all sensitive sites 2045: Fewer than 10 spills at all sites **What is the current situation?** There are around 80 sewer overflows in London. In 2021 there was around 3,000 spills in total. The number of spill from each overflow is highly variable with some overflows spilling more than others, but on average, there are 38 spills per overflow. **What would happen by 2050 without the plan?** Population growth and the effects of climate change (more extreme wet weather) would mean much greater numbers of spills from overflows. * "Sensitive sites" include rivers with special designations for wildlife, rare habitats, and/or high use for recreation activities. **What are storm overflows?** Combined sewers - Storm overflows are part of the "design" of the wastewater system from the past and are permitted by the Environment Agency. - Wastewater is released from overflows (a "spill") when sewers are full to prevent flooding in streets and houses. This usually happens if there is prolonged heavy rainfall. - The impact on the environment is usually minor because the wastewater is diluted with rainwater and cleared away by the river quickly. - Sometimes, however, there can be damage to rivers and harm to wildlife. This depends on the amount of wastewater released, what is in the wastewater (e.g. litter) and the flow of the river.	Do you think it is acceptable that the wastewater system in future would continue to allow overflows to occur in extreme circumstances?

Reducing property flooding	**Reduce property flooding**
	
	What are the targets in the plan for the London area?
	Reduce the number of properties at risk of internal and external sewer flooding by:
	
	2030: Internal: 1,000 fewer properties at risk
	    External: 2,000 fewer properties at risk
	
	2035: Internal: Reduce properties at risk by a further 16,000 (17,000 total)
	    External: Reduce properties at risk by a further 14,000 (16,000 total)
	
	2050: Internal: Reduce properties at risk by a further 48,000 (65,000)
	    External: Reduce properties at risk by a further 55,000 (70,000 total)
	
	What is the current situation?
	Around 80,000 properties in the London area (approx. 3% in total) currently face a 1-in-30 risk of flooding from sewers (around a 3.5% chance each year).
	
	What would happen by 2050 without the plan?
	Population growth and climate change could mean that 65,000 properties will be at risk of internal flooding and 70,000 properties will be at risk of external flooding each year.
	
	What type of flooding can occur?
	Internal flooding External flooding
	- Heavy rainfall can cause localised problems in the wastewater system.
	- Due to increased population and more wastewater being collected, some sewers are no longer large enough to cope with a lot of rainwater draining into them in a short space of time.
	- Where this is a problem wastewater can overflow and cause flooding in basements and ground-level rooms (internal flooding), and flooding in streets and gardens (external flooding).
		Based on the information provided so far about the wastewater system in the region and the plan to improve it, which problem do you think is worse?

Theme	Showcard	Follow-up question(s)
Increasing use of "new" solutions		Increase the use of new solutions will involve building partnerships with other organisations that own suitable land, consulting with local communities to ensure that all proposals are acceptable, and then building a large enough network of sites to reduce the amount of rainwater entering sewers. Given this, do you support the target set out in the plan?

Once respondents had been introduced to the five themes and associated targets, they ranked each aspect of the plan by importance. This data was used to calculate the average ranking of each theme of the plan. Section B concluded with a question testing respondents' views on profile investment over the 25-year period (2025 – 2050).

2.2.3 Section C: Support for the plan

Ahead of asking respondents whether they support the plan as described in Section B (i.e. the current preferred plan for the DWMP) respondents were informed of the overall level of investment (approx. £24 billion) and reminded that the cost will be spread across 25 years (2025-2050). The impact on customer bills was presented in terms of the average annual amount over the 25-year period (approx. £118 per year in present day prices). Further information (showcard) was provided that explained that this was the bill impact for the DWMP investments alone and that it excluded the effect of inflation (i.e. nominal price change) (Figure 2.1).

IMPORTANT NOTE – INDICATIVE IMPACT ON CUSTOMER BILLS FOR THE PERIOD 2025 TO 2050

The indicative bill amount shown is only for the actions and investments included in the plan for improving the wastewater system

- It <u>does not</u> include regular investments to maintain the system, those already underway, and those that may be needed for clean water services over the period 2025 - 2050.

- New investments will increase bills, but amounts paid for previous investments will drop out of bills, and innovations can also lead to bill reductions.

- The effect on the overall customer bill – the total amount paid for water and wastewater services – will depend on these other investments too, but it is not possible to indicate today what the overall change will be.

Please also keep in mind that:

- The indicative bill change is shown in "today's prices". This means it <u>does not include</u> an estimate of the effect of inflation, which is the general rise in prices over time. For example, if inflation averages around 2%* between 2025 and 2030, a bill of about £200 per year in 2025 for wastewater services will be about £255 per year by 2030.

- Inflation will also affect your household income (e.g. wages, benefits, state pension) and all other items of household expenditure (e.g. shopping bills, other utility bills, fuel and travel costs, etc.).

* The Office of Budget Responsibility and the Bank of England forecast the inflation rate will return to 2% before 2025.

Figure 2.1: Bill impact information

Customer support for the plan was asked as follows: "*Overall, how acceptable is the plan for improving the wastewater system in the region and its impact on customer bills?*". Respondents were reminded of both the plan targets/outcomes for their region, along with the targets for London or Thames Valley as relevant (Figure 2.2). Follow-up questions probed for their reasoning for why they thought the plan was acceptable or unacceptable.

The plan for the wastewater system in the region will…

Invest £24bn between 2025 and 2050 in the entire Thames Water region.

Averaged out over 25-years the impact on customer bills will be about £118 per year starting from 2025.

In the <u>Thames Valley</u> area, it will:	In the <u>entire Thames Water</u> region, it will:
• **Resilient wastewater system:** reduce number of homes at risk of internal sewer flooding in a 1 in 50-year storm by 2050	• **Resilient wastewater system:** reduce number of homes at risk of internal sewer flooding in a 1 in 50-year storm by 2050
• **Protect the environment:** upgrade sewage treatment works to maintain compliance with legal standards for river water quality	• **Protect the environment:** upgrade sewage treatment works to maintain compliance with legal standards for river water quality
• **Reduce storm overflows:** reduce sewer spills to less than 10 in a typical year at all locations by 2045	• **Reduce storm overflows:** reduce sewer spills to less than 10 in a typical year at all locations by 2045
• **Reduce property flooding:** reduce the number of homes at risk of internal and external sewer flooding (Around 4,400 for internal flooding and 11,500 for external flooding)	• **Reduce property flooding:** reduce the number of homes at risk of internal and external sewer flooding (Around 65,400 for internal flooding and 80,500 for external flooding)
• **Increase new solutions:** manage rainwater falling on over 1,000 hectares of land using sustainable drainage (SUDS) and property replumbing	• **Increase new solutions:** manage rainwater falling on over 8,000 hectares of land using sustainable drainage (SUDS) and property replumbing

Figure 2.2: **Plan targets and outcomes (Thames Valley)**

Respondents were then informed that some aspects of the plan could change based on feedback from customers and other stakeholders. The alternative scenarios for the plan were presented in terms of a comparative view between three or four options (Table 2.4) covering an "enhanced" plan, the current plan (i.e. the plan providing the basis for the DWMP consultation), and a reduced plan(s). The information presented to respondents showed the difference between the alternative scenarios in terms of the focus of investment, the plan targets and timing, and the impact on customer bills (Figure 2.3).

Table 2.4: **Alternative plan by region**

Plan	Region
Enhanced Plan	London and Thames Valley
Current Plan (DWMP consultation plan)	London and Thames Valley
Reduced Plan	London and Thames Valley
Reduced plan – focus on sewer overflows	London

Which option for the plan do you think is best (i.e. the option you prefer most)?

Please select one answer only

Enhanced plan	Current proposed plan	Reduced plan	Reduced plan - focus on sewer overflows
Improve the system to cope with population growth and climate change	*Improve the system to cope with population growth and climate change*	*No improvement - maintain 2025 condition of the system over time*	*Improve system to reduce sewer overflows only*
• All targets for improving the system by 2050 100% met. • More investment upfront for 2025 – 2035 compared to current proposed plan, meaning some of benefits from preventing flooding and reducing sewer overflows come sooner. • Extra investment also includes more actions to "replumb" more properties to reduce amount of rainwater entering sewers.	• All targets for improving the system by 2050 100% met. • Focus investment for 2025 – 2035 on hotspots that are priorities for preventing flooding and reducing sewer overflows.	• Maintain compliance with legal standards for the environment • Minimum extra investment to address population growth and climate change • No added investment to reduce number of properties at risk of flooding • No added investment to reduce sewer overflows	• Maintain compliance with legal standards for the environment • Investment focused on reducing sewer overflows, with priority hotspots targeted for period 2025 – 2035. • Less investment to prevent sewer flooding, meaning more properties will be at risk in the future.
Impact on customer wastewater bill: £195 per year for period 2025 – 2050.	**Impact on customer wastewater bill:** £118 per year for period 2025 – 2050.	**Impact on customer wastewater bill:** £34 per year for period 2025 – 2050.	**Impact on customer wastewater bill:** £20 per year for period 2025 – 2050.

Reminder: the customer wastewater bill impacts shown exclude the effect of inflation

Figure 2.3: **On-screen layout for choice of plan (London)**

Follow-up questions probed respondents' reasons for selecting each plan and asked the ease/difficulty of answering the questions in this section.

2.2.4   Section D: Follow-ups

This section looked at customer views about the plan and further trade-offs that would have to be made in the future if more stringent overflow targets were introduced. These questions were included to gauge customer support for stricter spills targets expected to be outlined in Defra's Storm Overflows Discharge Reduction Plan. Respondents were asked whether they would support more stringent targets if it resulted their bill increasing or in reductions in investment for protecting against flooding from sewers.

2.2.5   Section E: Respondent profile

The concluding section of the survey collected supplemental profile information about the respondent. For household respondents, this included employment status, income, education, type of property, and questions related to criteria for identifying customers in vulnerable circumstances. For non-household respondents, the questions included annual turnover and number of employees. The final questions sought general feedback on the survey, including its overall difficulty.

2.3   Sampling approach

Sampling quotas were specified to ensure representative samples of customers in the London and Thames Valley regions (Figure 2.4). For household respondents, sampling quotas were specified according to gender, socio-economic group (SEG) and age (Table 2.5). For non-household respondents, sampling was

based on sector (Table 2.6).
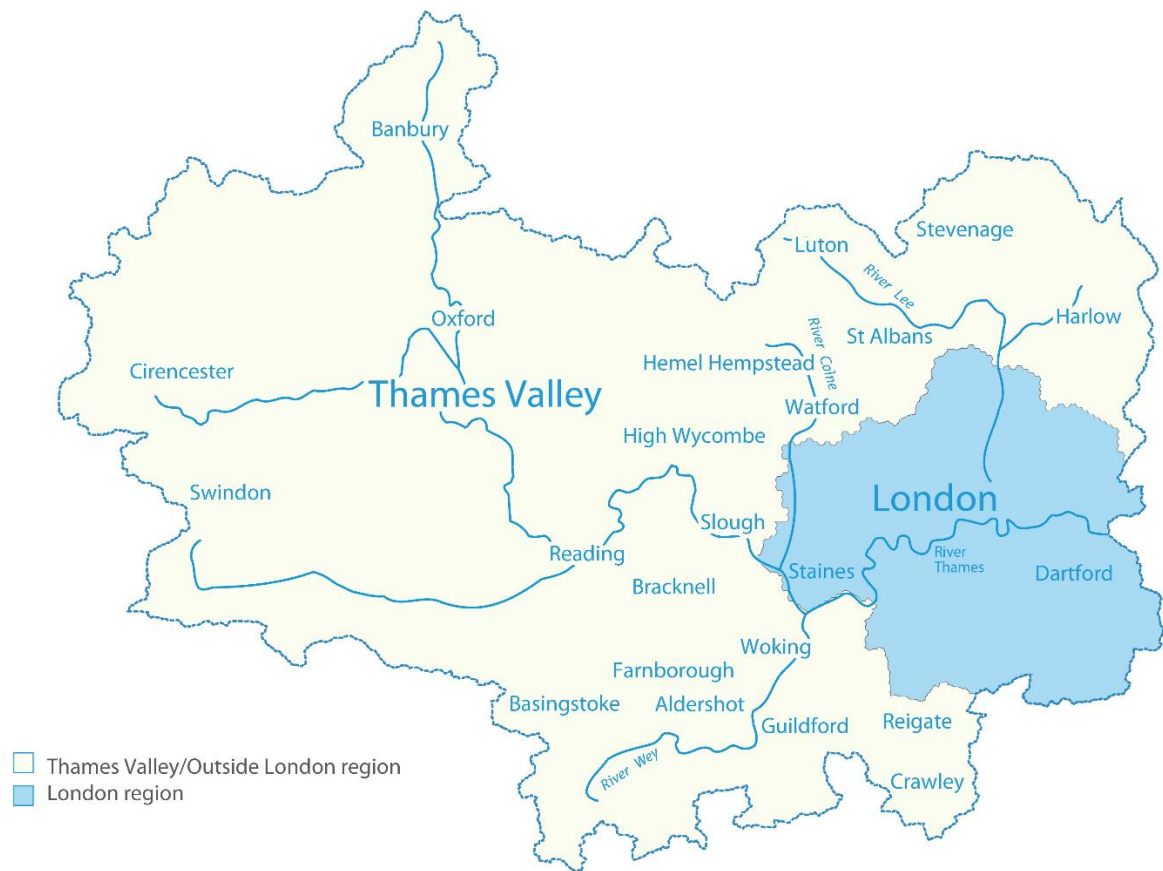
Figure 2.4: **London and Thames Valley regions**

Table 2.5: Sampling quotas – household customers

Socio-economic group	London[1]		Thames Valley[1]	
	Quota	Quota (%)	Quota	Quota (%)
SEG AB	145	29%	145	29%
SEG C1	165	33%	165	33%
SEG C2	85	17%	85	17%
SEG DE	105	21%	105	21%
Total	**500**	**100%**	**500**	**100%**
Gender	**Quota**	**Quota (%)**	**Quota**	**Quota (%)**
Female	255	51%	255	51%
Male	245	49%	245	49%
Total	**500**	**100%**	**500**	**100%**
Age[2]	**Quota**	**Quota (%)**	**Quota**	**Quota (%)**
18-24	60	12%	60	12%
25-30	65	13%	65	13%
31-44	140	28%	140	28%
45-54	85	17%	85	17%
55-64	65	13%	65	13%
65+	85	17%	85	17%
Total	**500**	**100%**	**500**	**100%**

Source: *ONS 2011 Census & Thames Water Annual Performance Report 2015-16*
[1] *Regional split determined through discussions with Thames Water.*
[2] *The quota targets for age were specified according to ONS Census data for the Thames Water region (overall population/consumers of water and wastewater services), rather than the actual bill-payer profile for the Thames Water customer base.*

Table 2.6: Sampling quotas – non-household customers

Sector	London		Thames Valley	
	Quota	Quota (%)	Quota	Quota (%)
Primary	2	1%	2	1%
Secondary	23	15%	23	15%
Tertiary	126	84%	126	84%
Total	**150**	**100%**	**150**	**100%**

Source: *The quota targets were specified according to ONS Business Activity (2019) data for the South East of England – rounded to the nearest percentage point.*

3. Respondent profile

Summary:

- The sample was representative of wastewater services customers (bill-payers), covering both households (n=1,004) and non-households (n=300) and segmented by the London and Thames Valley operational areas.

The sample profile was representative of household and non-household customers in the Thames Water wastewater region. The average time to complete the survey was approximately 18 minutes for household respondents and 14 minutes for non-household respondents.

3.1 Geographic profile

Overall, 1,304 customers completed the survey. Figure 3.1 shows the geographic distribution of respondents by area (Thames Valley and London) and customer type (household and non-household).
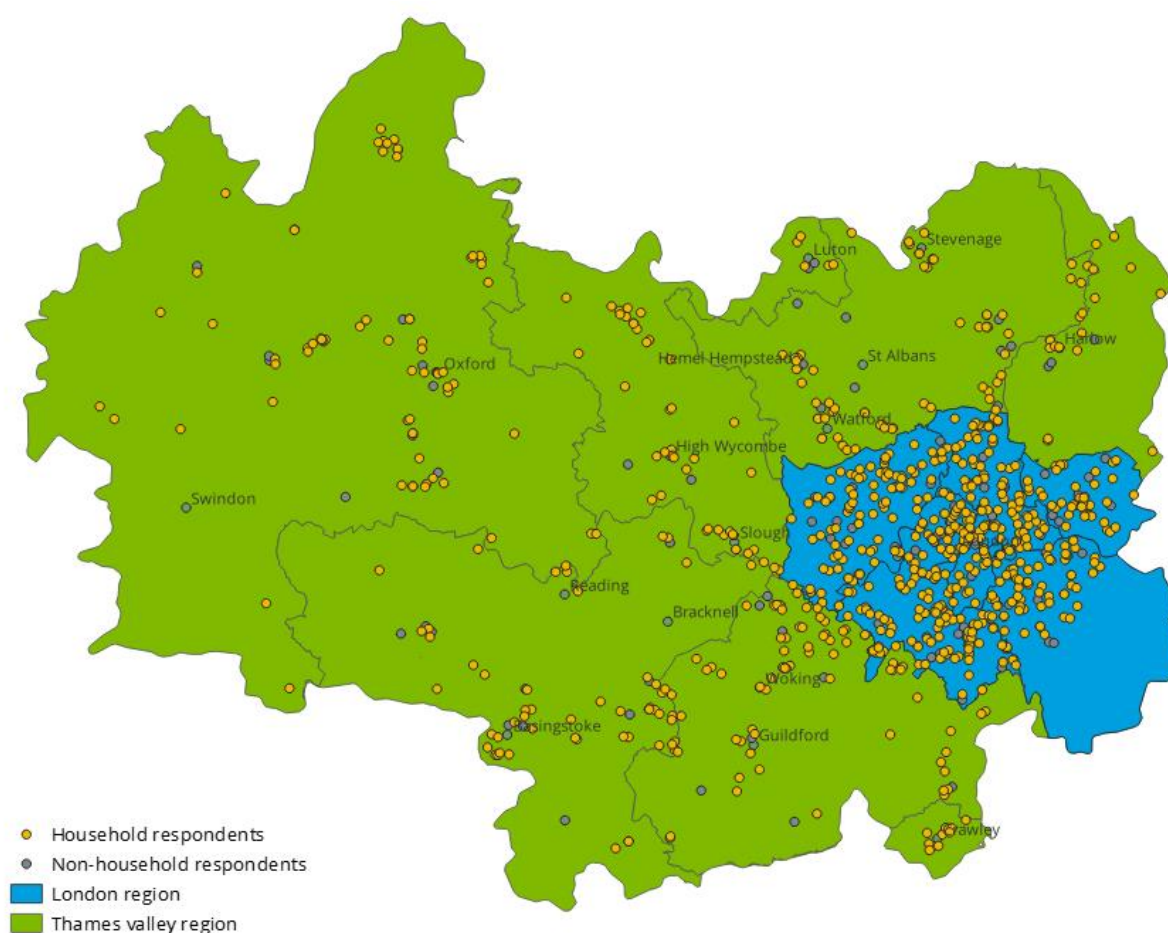
Figure 3.1: **Geographic distribution of survey respondents – household and non-household**

Household sample

In accordance with the sampling approach (Section 2.3), the household sample was split 50:50 between London and Thames Valley customers. The profile in terms of water services provider is shown in Figure 3.2. For the London sample, the majority of respondents were Thames Water water services customers (77%), with Affinity Water customers representing around one-seventh of the sample (14%). For the Thames Valley sample, just under half of the respondents were Thames Water water services customers (44%) and Affinity Water provides water services to a larger proportion of respondents in Thames Valley than London (27%).
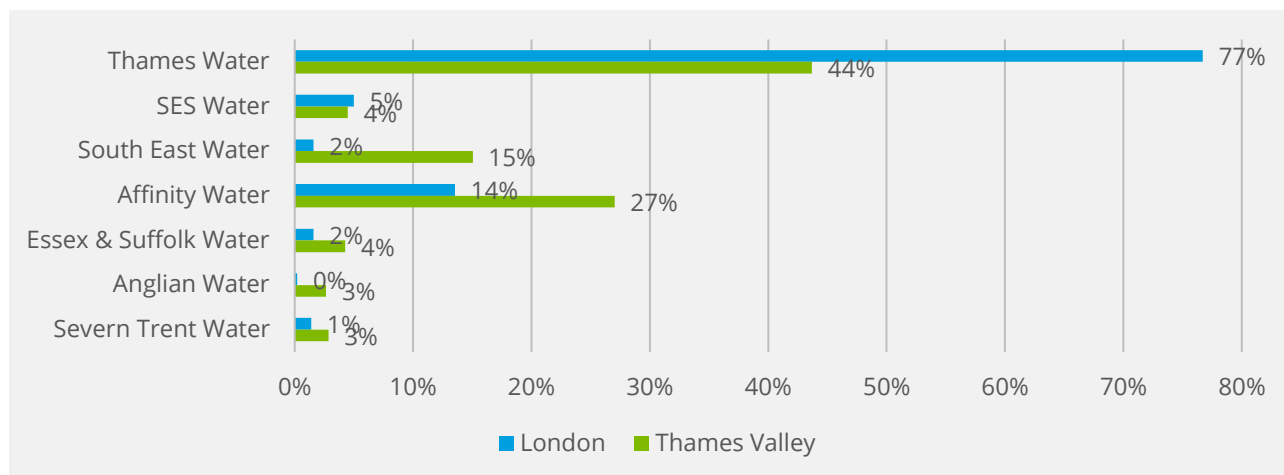
Figure 3.2: Water services provider - households (n = 1,004)

The London sample primarily comprised of respondents stating that they lived in either an urban (54%) or suburban area (38%). In contrast, the Thames Valley sample had a greater proportion of respondents from rural areas (21%) (Figure 3.3).
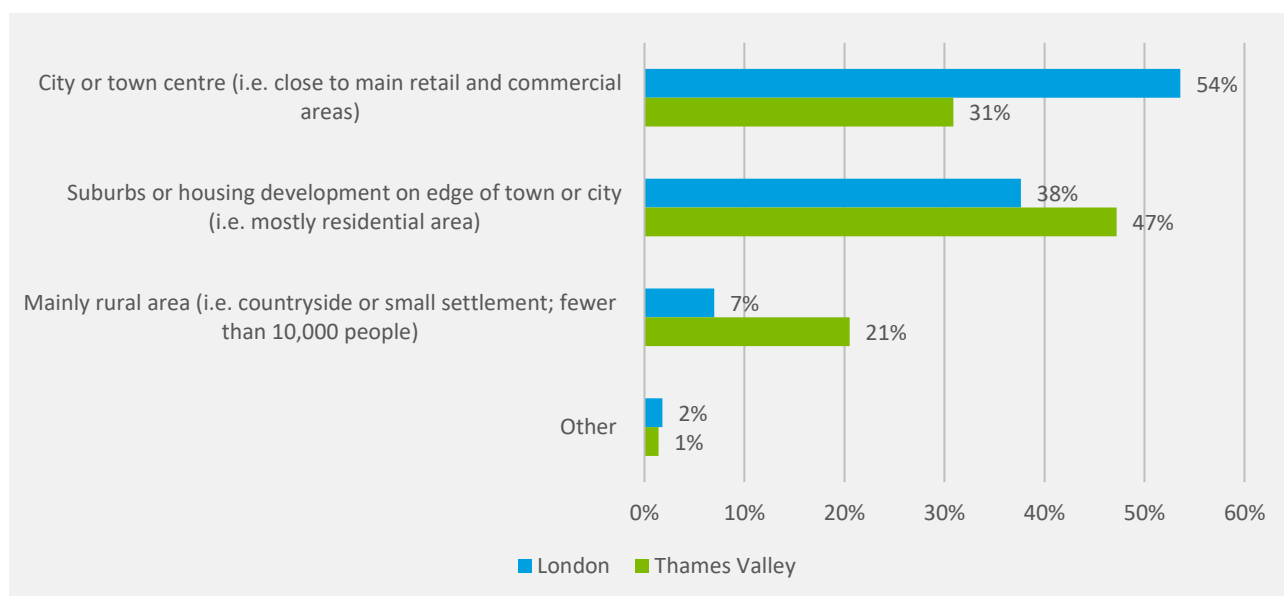
Figure 3.3: Rural vs. urban split - households (n = 1,004)

Non-household sample

The largest share of customers for both the London (80%) and Thames Valley (45%) non-household samples were Thames Water combined water and wastewater services customers (Figure 3.4).
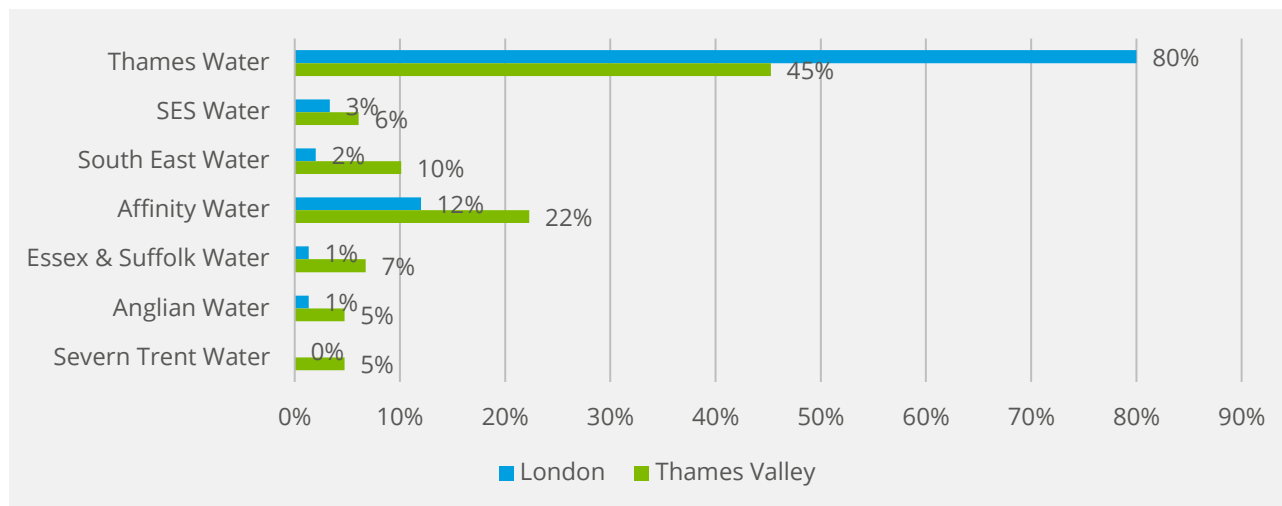
Figure 3.4: Water services provider - non-households (n = 300)

3.2   Demographic and socio-economic profile - households

The household samples were representative of the Thames Water customer base for age and gender. All age cohorts were within +/- 3 percentage points of their respective targets (Figure 3.5). Similarly, the gender cohorts were within +/-5 percentage points of the sample quotas (Figure 3.6).

		n	%	
18-24	*Quota*			12%
	London	63		13%
	Thames Valley	69		14%
25-30	*Quota*			13%
	London	69		14%
	Thames Valley	70		14%
31-44	*Quota*			28%
	London	150		30%
	Thames Valley	147		29%
45-54	*Quota*			17%
	London	83		17%
	Thames Valley	87		17%
55-64	*Quota*			13%
	London	51		10%
	Thames Valley	53		11%
65+	*Quota*			17%
	London	86		17%
	Thames Valley	76		15%

Figure 3.5: Age profile - households (n = 1,004)

		n	%	
Female	*Quota*		51%	
	London	268	54%	
	Thames Valley	280	56%	
Male	*Quota*		49%	
	London	232	46%	
	Thames Valley	217	44%	

Figure 3.6: Gender profile - households (n = 1,004)

The overall household sample was also well aligned in terms of ethnicity, with 77% white respondents and 21% BME respondents (Figure 3.7).
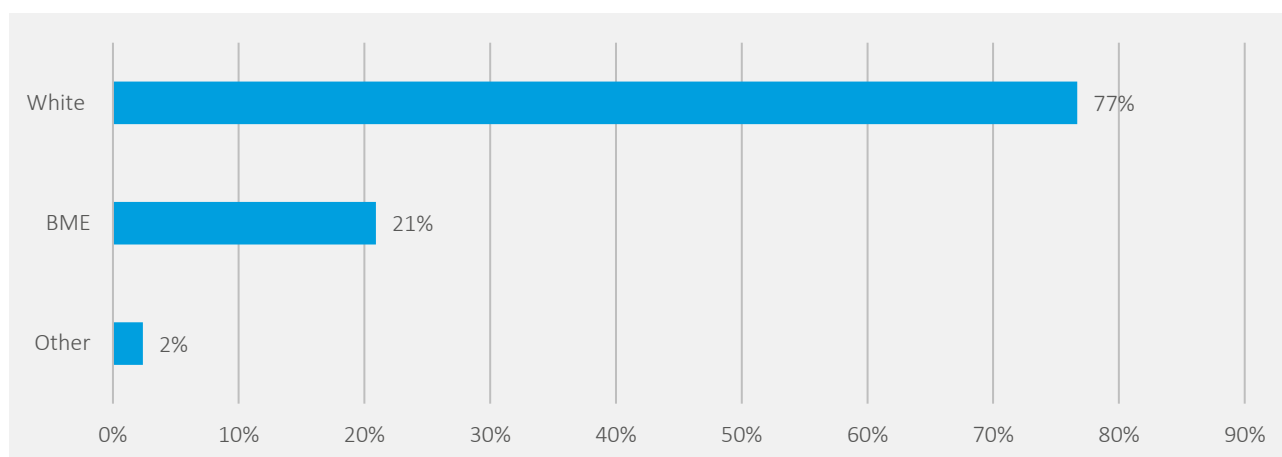
Figure 3.7: Ethnicity profile - households (n = 1,004)

The largest proportion of respondents in the sample had resided in the Thames Water area for over 30 years (29%), followed by respondents had who lived in the region for three to ten years (London 29%; Thames Valley 27%) (Figure 3.8).
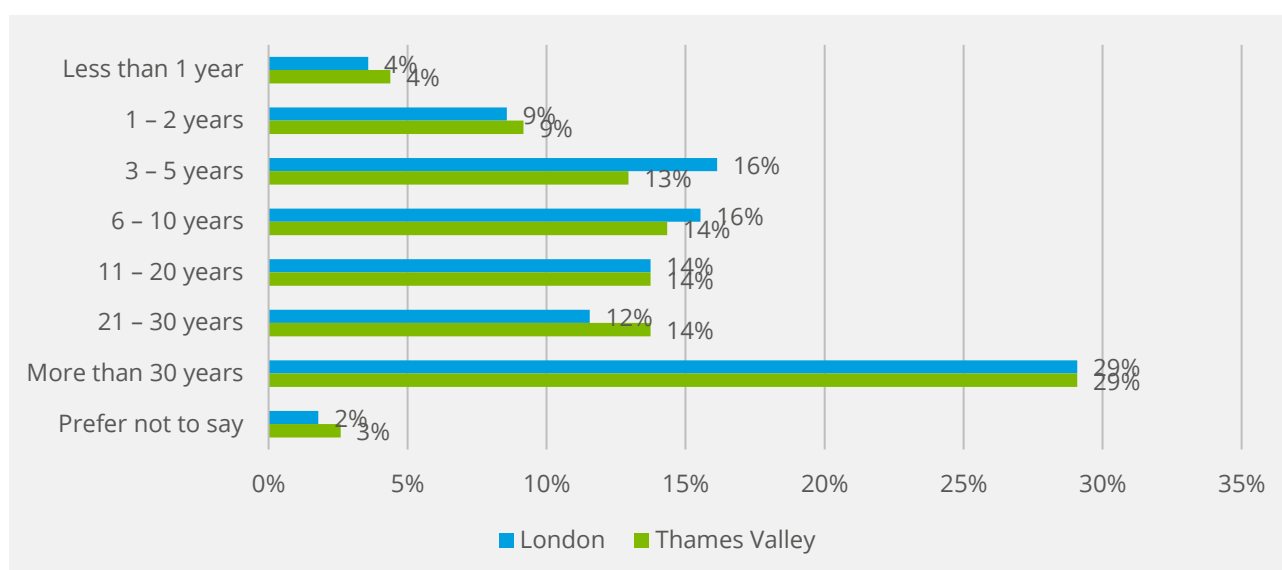
Figure 3.8: Length of residency in the Thames Water region - households (n = 1,004)

The socio-economic group (SEG) profile of respondents was also regionally representative, with cohorts differing a maximum of +/-4 percentage points from their respective quotas (Figure 3.9).

		n	%	
AB	*Quota*			29%
	London	157		31%
	Thames Valley	158		33%
C1C2	*Quota*			50%
	London	247		49%
	Thames Valley	230		47%
DE	*Quota*			21%
	London	98		20%
	Thames Valley	98		20%

Figure 3.9: SEG profile - households (n = 1,004)

The average annual household income of the sample was just over £40,000 (median = £32,794) (Figure 3.10). This is compared to the median household income for the South East (£28,200) and for London (£31,766)[6].

Figure 3.10: Household income profile (annual) (n =1,004)

The household version of the survey also included a set of questions to identify respondents that might be in potentially vulnerable circumstances. Overall, around one in six household respondents (approx. 17%) met at least one criterion that indicates potentially vulnerable circumstances (Figure 3.11; Figure 3.12).

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[6] Data from Office for National Statistics (ONS) Annual Survey of Hours and Earnings. Summaries here: https://commonslibrary.parliament.uk/research-briefings/cbp-8456/
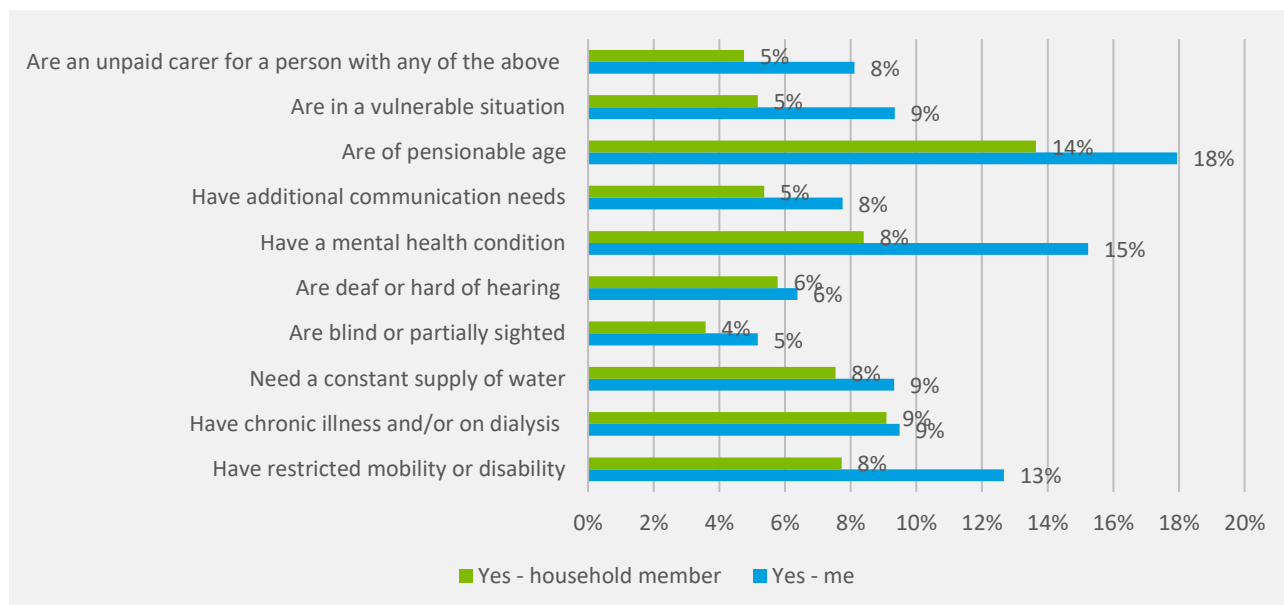
Figure 3.11: Customers in potentially vulnerable circumstances – households (London) (n = 502)
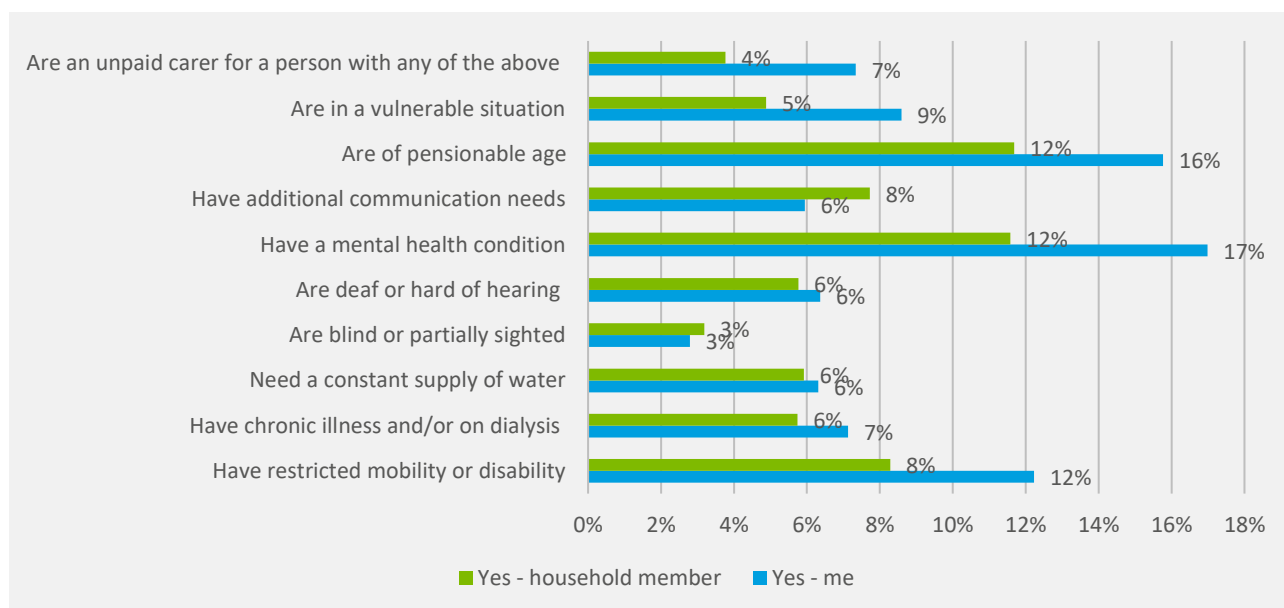
Figure 3.12: Customer in potentially vulnerable circumstances – households (Thames Valley) (n = 502)

Finally, just under 40% of respondents stated that they do not have any problems paying their water bill, whilst around 25% reported that they sometimes find it difficult to pay (Figure 3.13).
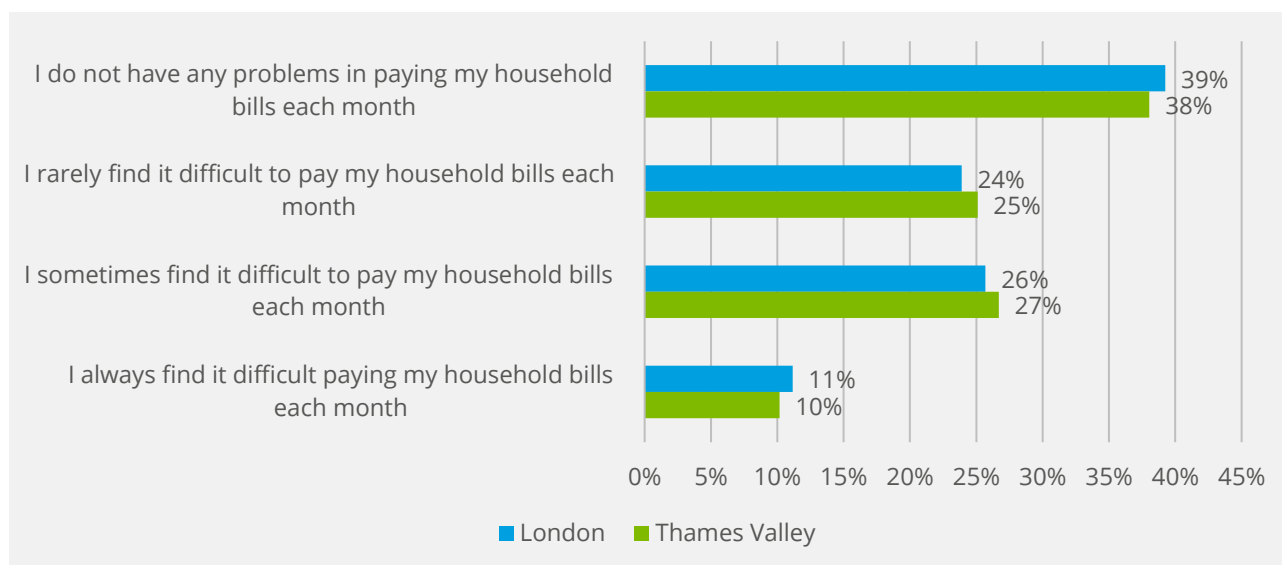
Figure 3.13: Difficulty paying water bill, household (n = 1004)

3.3 Organisation profile - non-households

The majority of non-household respondents were involved in tertiary sector activities (approx. 80%). Businesses from the secondary sector represented around one-seventh of the sample (approx. 15%) (Figure 3.14). The overall profile of both the London and Thames Valley samples were representative of the regions, with all sectors being within +/- 2 percentage points of their corresponding targets.

		n	%		
Primary	*Quota*				1%
	London	2			1%
	Thames Valley	2			1%
Secondary	*Quota*				15%
	London	23			15%
	Thames Valley	25			17%
Tertiary	*Quota*				84%
	London	125			83%
	Thames Valley	123			82%

Figure 3.14: Respondent sector, non-household (n = 300)

The non-household sample also had a good spread across organisation size (Figure 3.15), with medium size organisations (50 – 249 employees) providing the largest share of respondents (London 38%; Thames Valley 35%). The sample was also reasonably balanced between with the London and Thames Valley regions for micro and small organisations (0-9 employees) and large organisations (250+).

		n	%	
0-9	Thames Valley	29		19%
	London	27		18%
10-49	Thames Valley	39		26%
	London	38		25%
50-249	Thames Valley	52		35%
	London	57		38%
250+	Thames Valley	30		20%
	London	28		19%

Figure 3.15: Number of employees - non-households (n = 300)

Multi-site organisations made up the greater proportion of the sample for both London and Thames Valley. In London, single site organisations accounted for almost one-third of respondents (31%) versus nearly two-thirds multi-site organisations (61%). For the Thames Valley a lower proportion were multi-site organisations (53%) but this also outweighed single site organisations (42%).
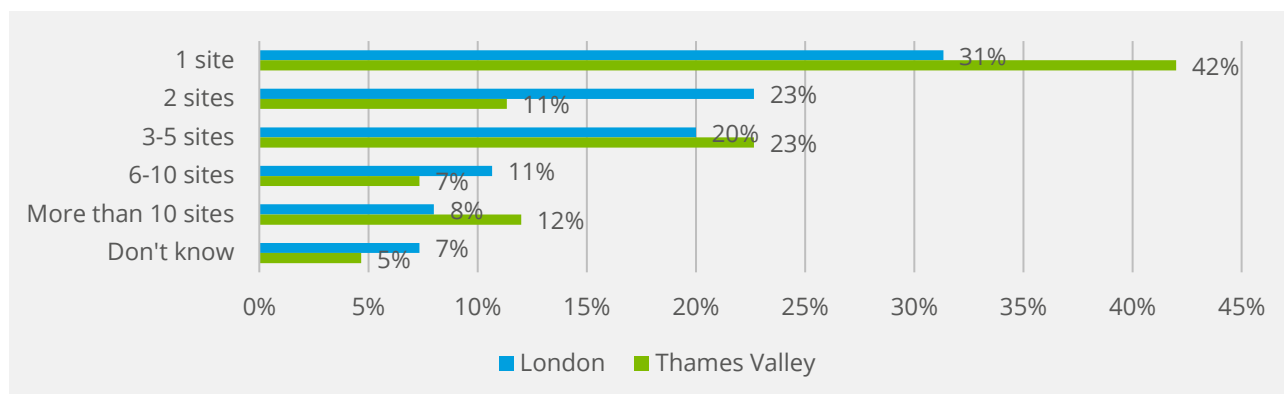
Figure 3.16: Number of sites - non-households (n = 300)

Annual turnover was reasonably varied across both the London and Thames Valley samples, with the modal average range being up to £49,999 per year (21% and 27%, respectively).
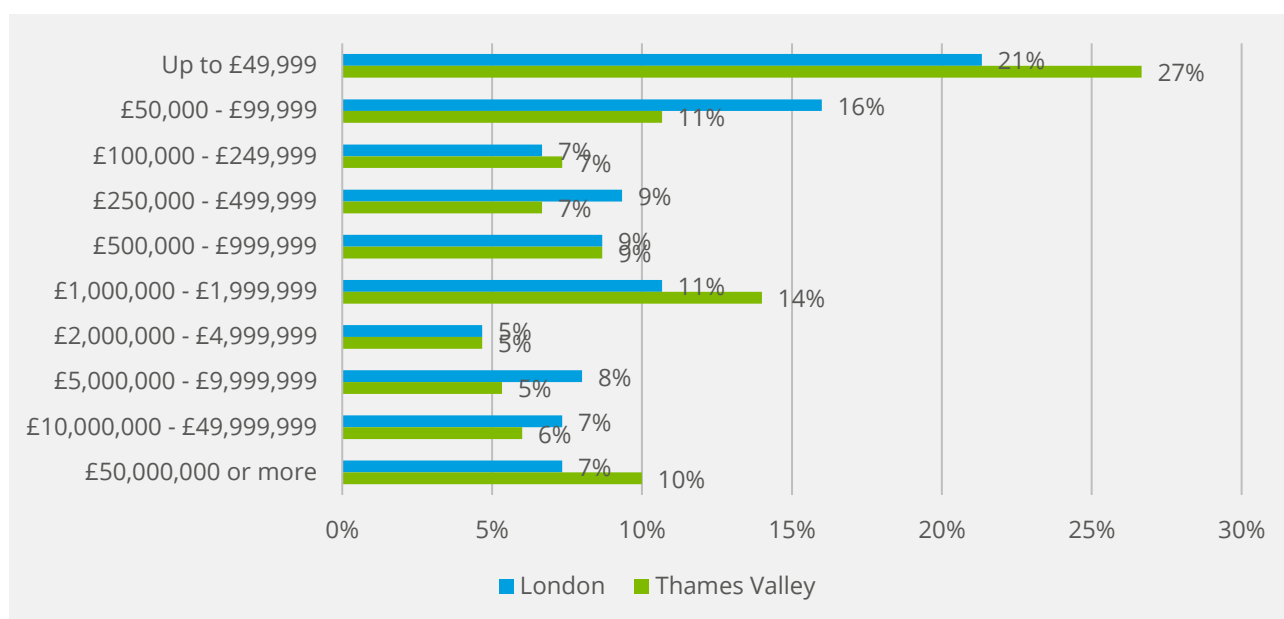
Figure 3.17: Annual turnover - non-households (n = 300)

4. Results

> **Summary:**
> - Overall, respondents had a reasonable level of awareness of the implications of climate change and population growth for the wastewater system.
> - Views on the acceptability of spills were mixed, with no single perspective representing an overriding majority view. Views were also mixed on the significance of sewer flooding and overflow problems in the region. There was a high level of support for use of new solutions for surface water management.
> - There was a good level of support for the preferred plan in both London and Thames Valley from household and non-household customers (>60% "acceptable" or "very acceptable"). Overall, the combined support for the proposed level of action (current proposed plan) or more action (enhanced plan) outweighed the preference for a reduced scope of plan.
> - The majority of respondents indicated the survey was easy to complete, and a large proportion found it interesting. Very few respondents found it difficult to understand or not credible.

4.1 Awareness and attitudes

4.1.1 Awareness of future pressures

Overall, most respondents stated that they had a reasonable level of awareness of the climate change and population growth and could understand what that could mean for the wastewater system in terms of increasing risk of flooding and the need to upgrade sewage treatment works to protect the water environment (Figure 4.1; Figure 4.2; Figure 4.3; Figure 4.4). In both instances, the majority of household and non-household respondents stated they were at least "somewhat aware" of the potential implications (broadly around 3 in 4), indicating that the larger part of the overall sample at least had some initial reference point for the survey topic and understanding as to overall context and need for the DWMP.
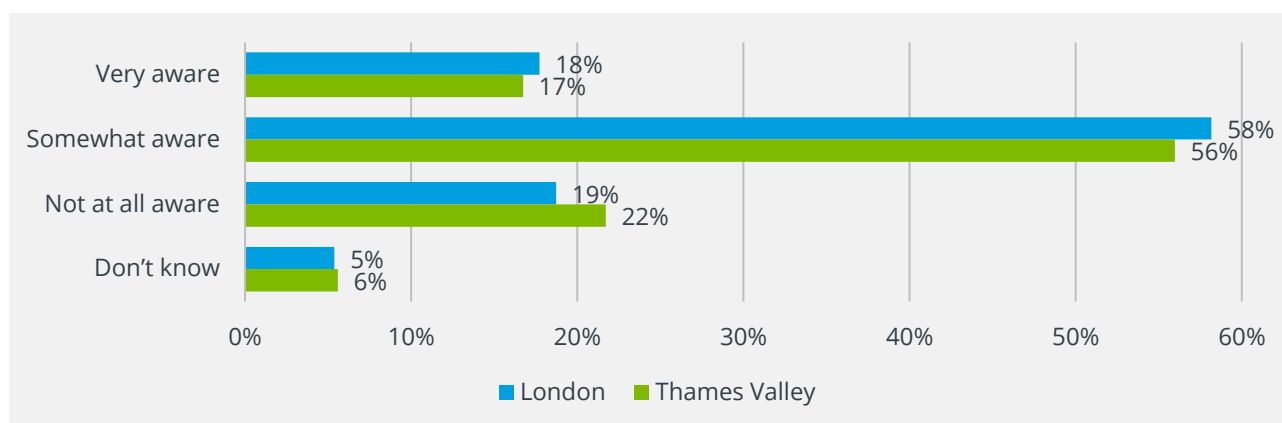
Figure 4.1: Awareness of the increasing risk of flooding from wastewater - households (n = 1,004)
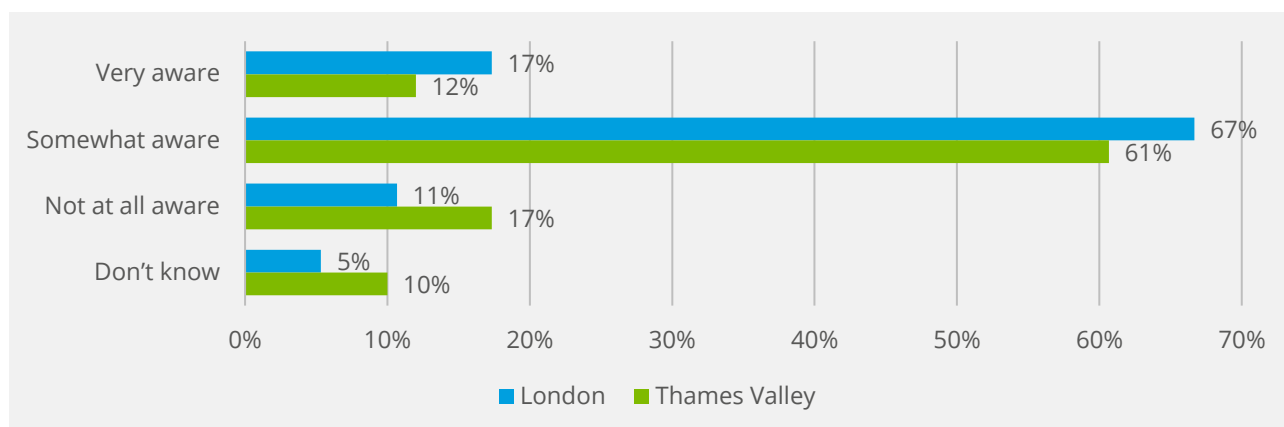
Figure 4.2: Awareness of the increasing risk of flooding from wastewater, non-households (n = 300)
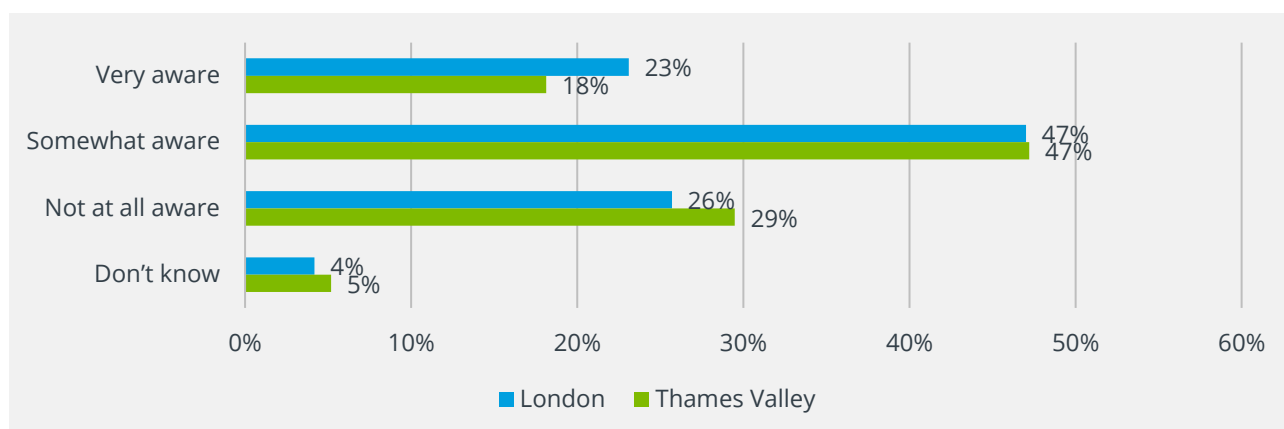
Figure 4.3: Awareness of the need to upgrade STWs - households (n = 1,004)
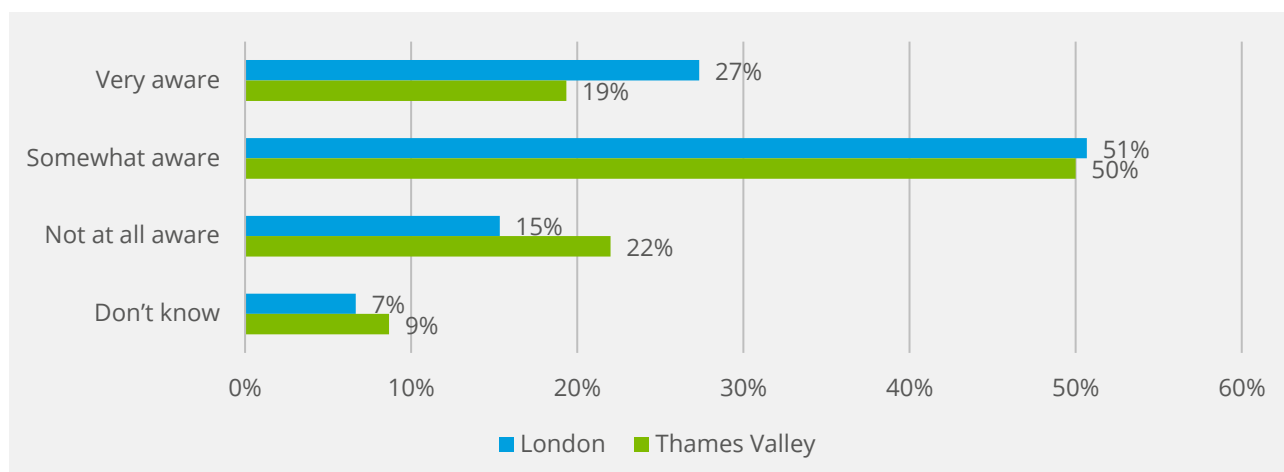
Figure 4.4: Awareness of the need to upgrade STWs - non-households (n = 300)

4.1.2   Views on overflows

Views on the acceptability of sewer overflows – in terms of the wastewater system continuing allow spills in extreme circumstances - were mixed. Overall, there was no stand-out perspective that was with no single response option chosen by a majority of respondents (Figure 4.5, Figure 4.6).
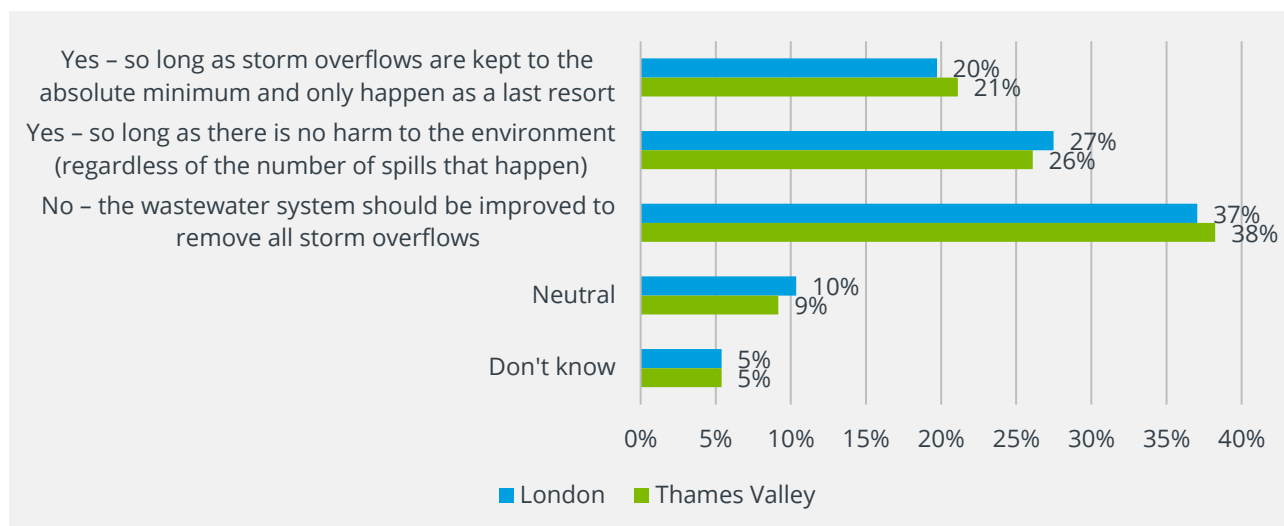
Figure 4.5: Views on sewer overflows and spills - households (n = 1,004)
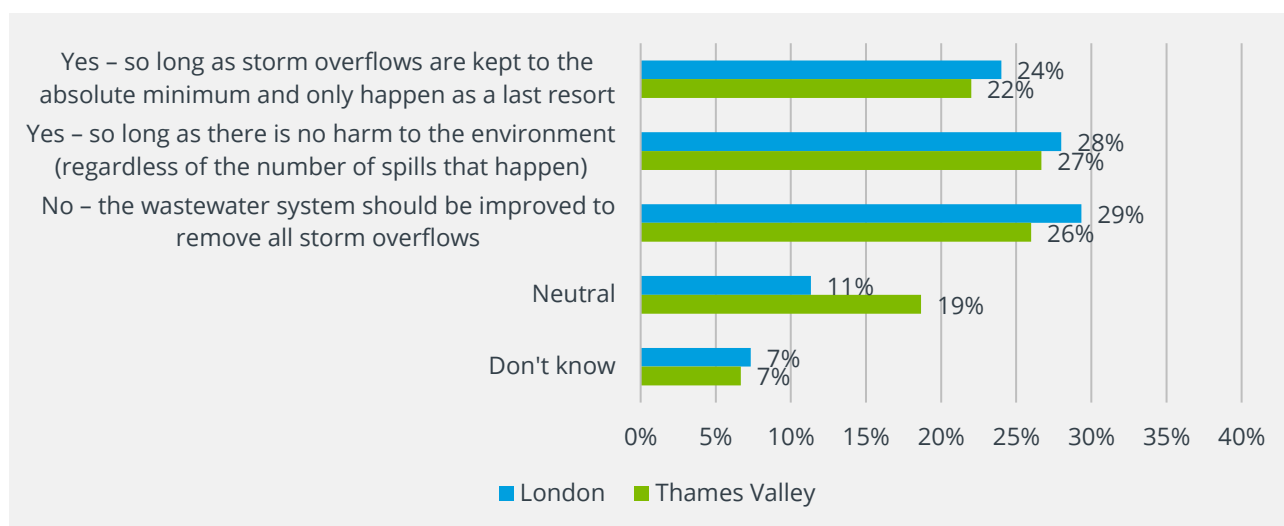
Figure 4.6: Views on sewer overflows and spills - non-households (n = 300)

For household respondents, the most common individual response was that overflows were not acceptable, and that the wastewater system should be improved to remove them (London 37%; Thames Valley 38%). However, this view was outweighed by the combined response that overflows were acceptable in the limited circumstances of either: (i) being kept a minimum and only happening as a last resort, or (ii) if there was no harm to the environment (London 47%; Thames Valley 47%). Non-household respondents were a little more accepting, with fewer compared to the household sample stating that that overflows were not acceptable (London 29%; Thames Valley 26%). However, similar proportions stated they were acceptable in the limited circumstances of minimal occurrence or no harm to the environment (London 52%; Thames Valley 49%).

Respondents' views were also mixed on the significance of overflows and spills versus impacts from sewer flooding. Overall, there was a leaning from both household and non-household respondents towards flooding being worse. However, a significant proportion of respondents (around 1/3), especially household respondents, felt that both problems were of equal severity (Figure 4.7, Figure 4.8).
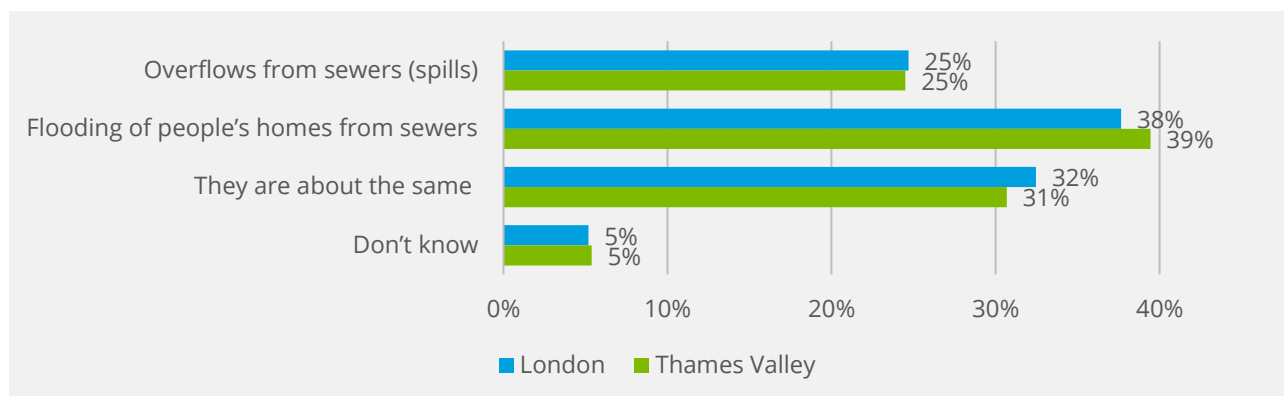
Figure 4.7: **Views on sewer overflows versus sewer flooding - households (n = 1,004)**
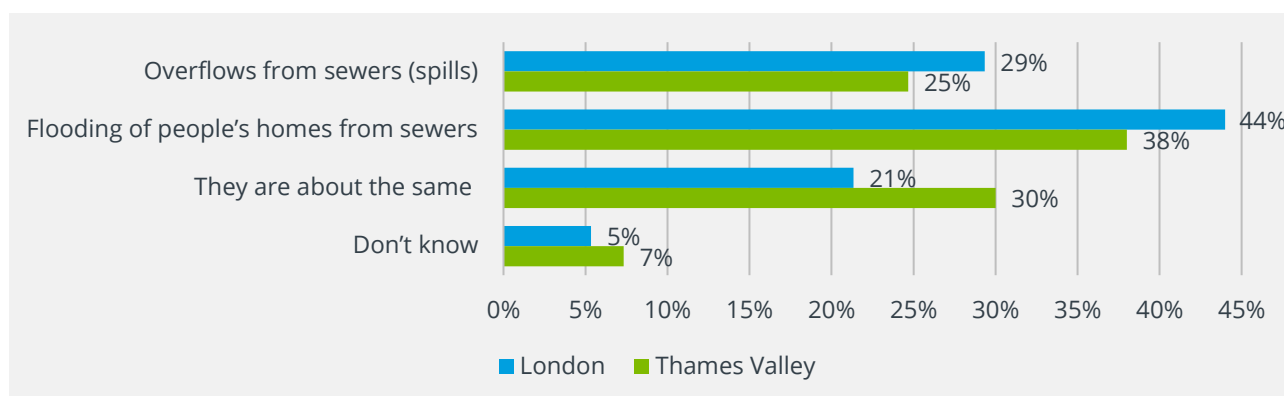
Figure 4.8: **Views on sewer overflows versus sewer flooding - non-households (n = 300)**

4.1.3   Use of new solutions for surface water management

Overall, there was a high level of support for the use of new solutions in the plan across respondents. Around 7 in 10 respondents for both households and non-households in both the London and Thames Valley samples support the target for significantly increasing use of sustainable urban drainage systems (SUDS) and other actions to "replumb" the wastewater system in the region (Figure 4.9, Figure 4.10).
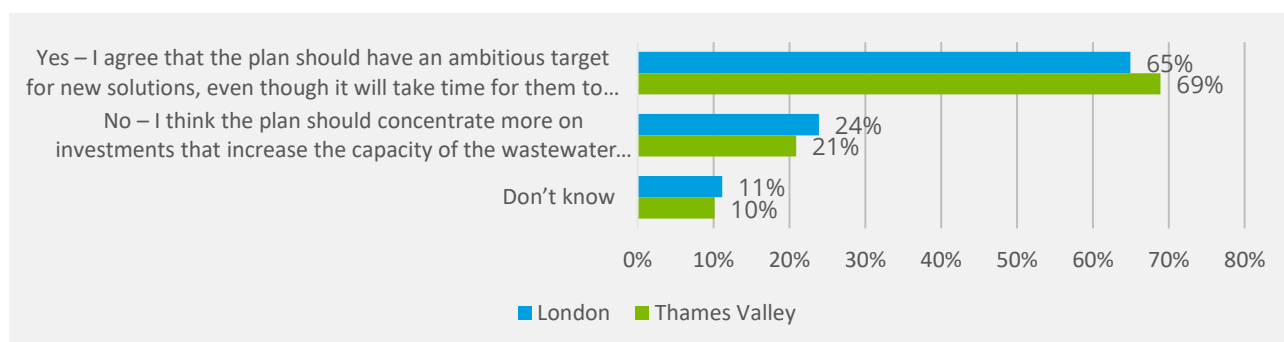
Figure 4.9: Support for new solutions - households (n = 1,004)
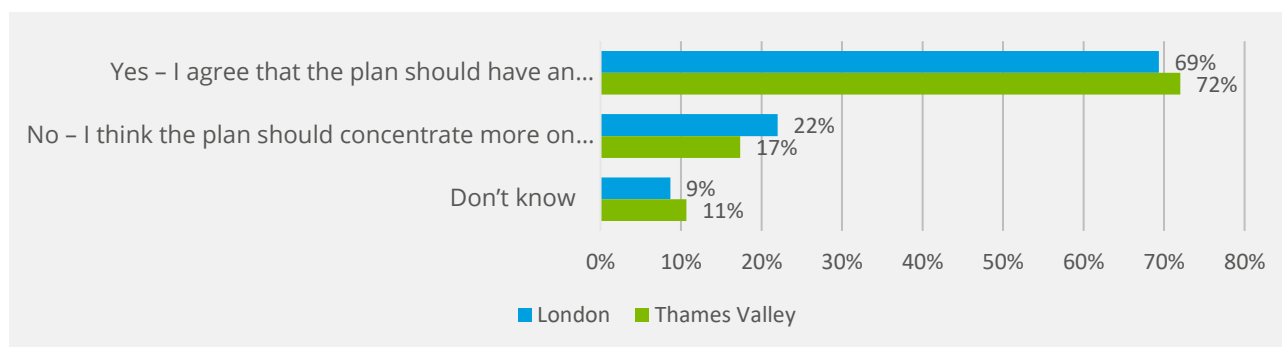
Figure 4.10: Support for new solutions - non-households (n = 300)

4.1.4   Timing and pace of investment

Respondents' views on the timing and pace of investment for the plan were asked prior to the introduction of information on the bill impact. Responses were therefore "unconstrained" and should be interpreted as "in principle" regarding the strategy to deal with uncertainty in future planning. Overall, an "even" pace of investment was the most preferred profile for both London (households 49%; non-households 45%) and Thames Valley (households 49%; and non-households 53%) (Figure 4.11; Figure 4.12).
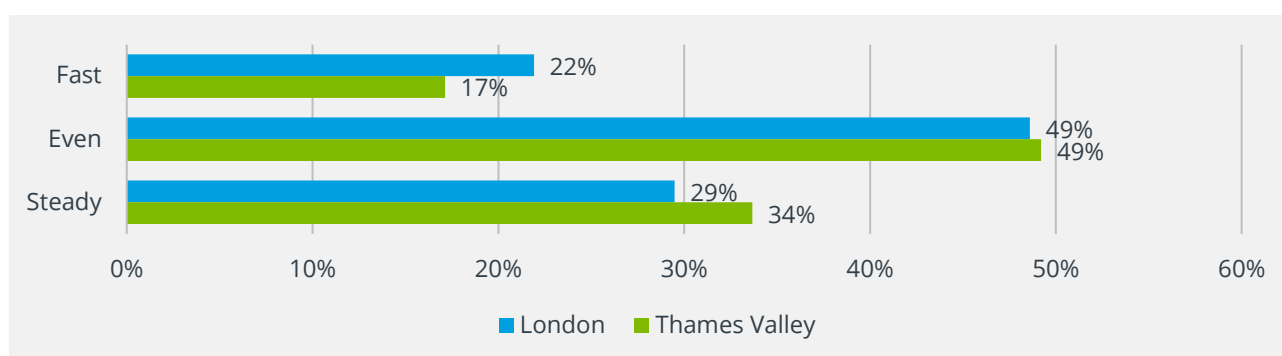
Figure 4.11: Preferred investment profile (in principle) - households (n = 1,004)
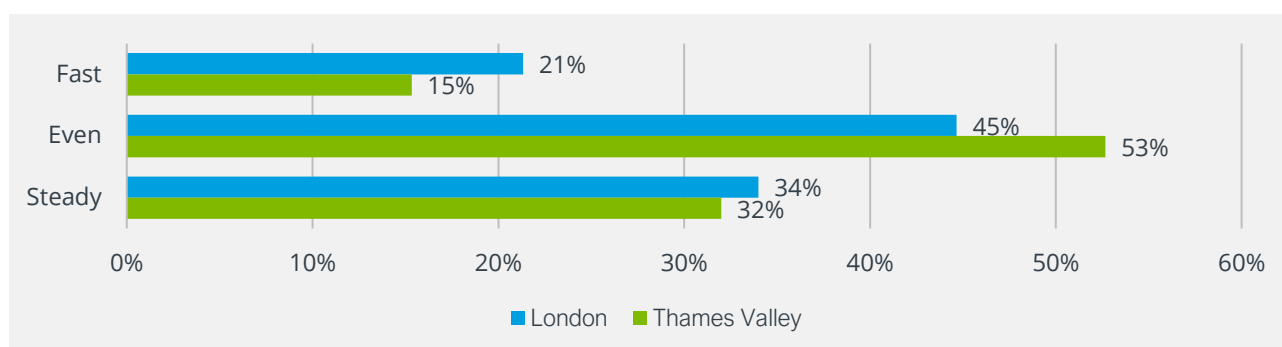
Figure 4.12: Preferred investment profile (in principle) - non-households (n = 300)

Accompanying feedback from respondents (both London and Thames Valley) indicated that the "even" pace tended to be viewed as an appropriate balance between the risk of mis-directed investment and higher upfront cost of a "fast" pace, versus the risk of delay in meeting targets and delivering outcomes of a "steady" pace. The main reasons cited for choosing "even" were "there is more time for planning to ensure the targets are actually met" (household 17%, non-household 9%) and "to have a lower bill impact

upfront that will be more affordable for customers" (household 22%, non-household 9%) (see Appendix 6).

The "fast" pace was the least preferred profile overall and tended to be selected more by household respondents who thought that spills were worse (than flooding) and by non-household respondents with a larger number of sites.

4.1.5   Plan targets and priorities

Household and non-household respondents had similar views on the plan targets and similarly ranked the importance of achieving the stated outcomes. For both sets of customers, the two top priorities were reducing sewer flooding and protecting and improving the environment through STW upgrades (Figure 4.13; Figure 4.14).
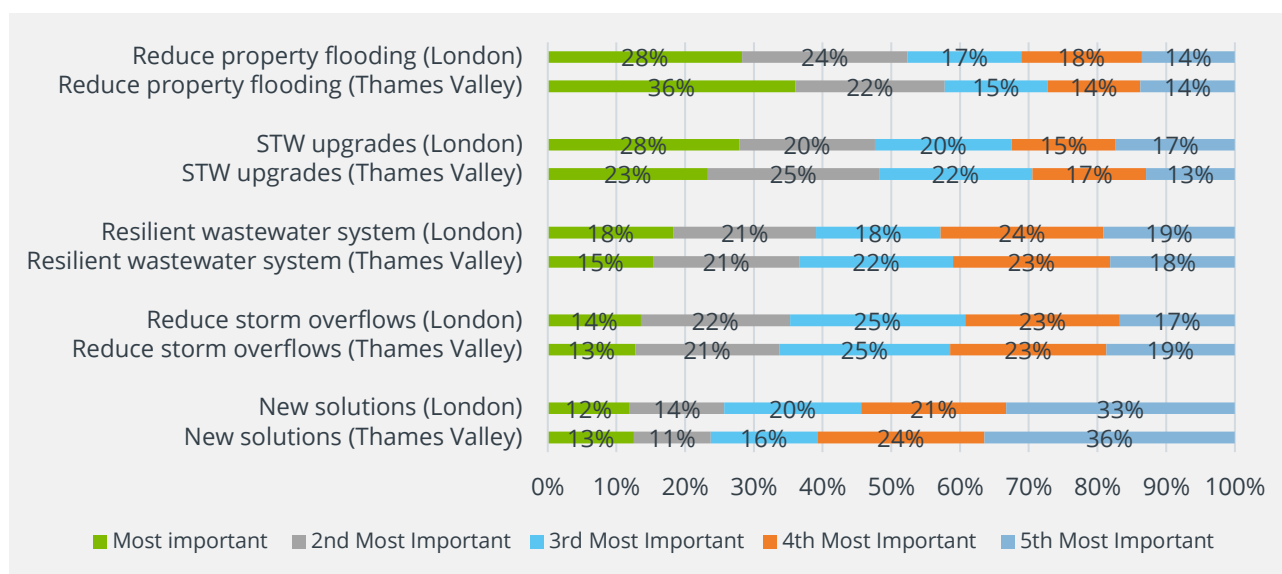
Figure 4.13: Ranking plan targets - households (n = 1,004)
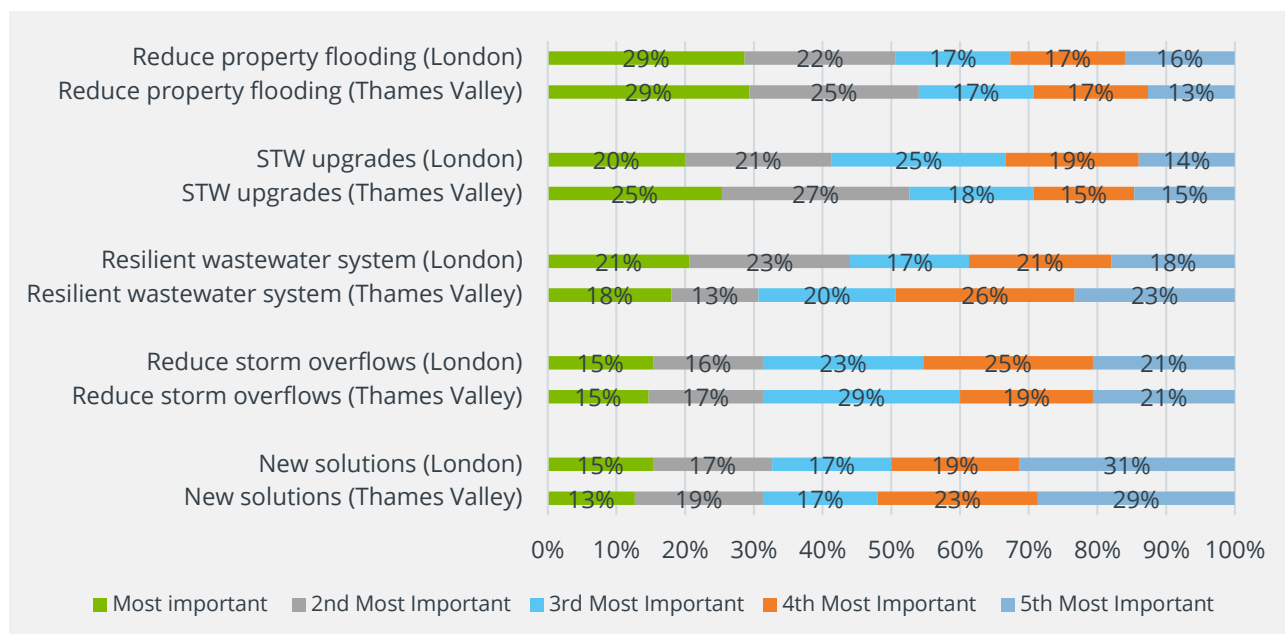
Figure 4.14: Ranking of plan targets - non-household (n = 300)

Overall, though, the difference in the average ranking between flooding and STW upgrades was relatively minor. This was also the case for the other plan targets, where the average ranking shows a relatively narrow spread in the scores assigned by respondents, with increasing the resilience of the wastewater system to extreme storms ranked marginally higher than reducing storm overflows (Table 4.1). A clearer differentiation was observed, when it came to ranking the use of new solutions: it has a lower average ranking than all of the outcome-based plan targets.

Table 4.1: Average importance ranking of plan targets

Rank	Household (avg. rank) (n = 1,004)	Non-household (avg. rank) (n = 300)
Most Important	Reduce property flooding (2.6)	Reduce property flooding (2.6)
2nd Most Important	STW upgrades (2.7)	STW upgrades (2.8)
3rd Most Important	Resilience (3.1)	Resilience (3.1)
4th Most Important	Reduce storm overflows (3.1)	Reduce storm overflows (3.2)
5th Most Important	New solutions (3.6)	New solutions (3.4)

4.2   Support for the plan

4.2.1   Acceptability

As described in Section 2.2, respondents were asked to state whether the plan for the region and its impact on customer bills was acceptable. Ahead of answering this question, respondents were provided with information on the bill impact averaged over the 25-year period from 2025 – 2050 and asked to

confirm that they understood that the bill amount shown was only for the actions and investments included in the plan for improving the wastewater system between 2025 and 2050, and that it did not include investment that may be needed in clean water services over the same time period. Respondents were also provided with information that recapped the plan targets and outcomes previously presented to respondents, with information detailing both the targets for the London and Thames Valley areas of the region. The accompanying instructions asked respondents to think carefully about the plan, the targets set out, and how it will improve the wastewater system so that it can cope with a growing population, climate change, the loss of green space, and the need for higher levels of protection of the environment.

Overall result

Topline results are summarised in Figure 4.15 and Figure 4.16. Support for the plan was relatively high from both household and non-household respondents in both the London and Thames Valley areas. For households, 64% of London respondents and 63% of Thames Valley respondents indicated that the plan was acceptable. The majority of non-household respondents also stated that the plan was acceptable (London 67%; Thames Valley 64%). The most frequent reason given by respondents (London and Thames Valley) for stating why the plan was acceptable was that "the proposed improvements are needed" (28% of respondents) (Appendix 6).
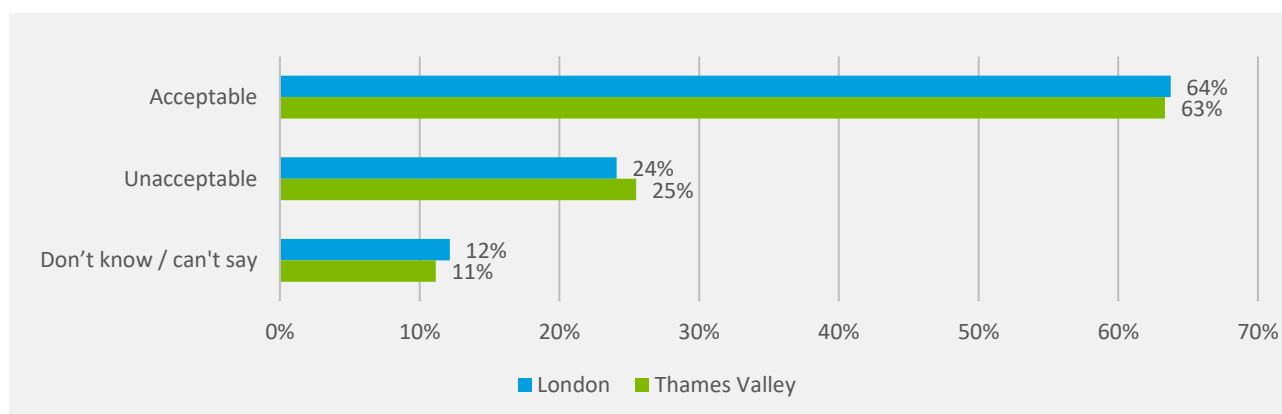
Figure 4.15: Customer support for the proposed plan for the region - households (n = 1,004)
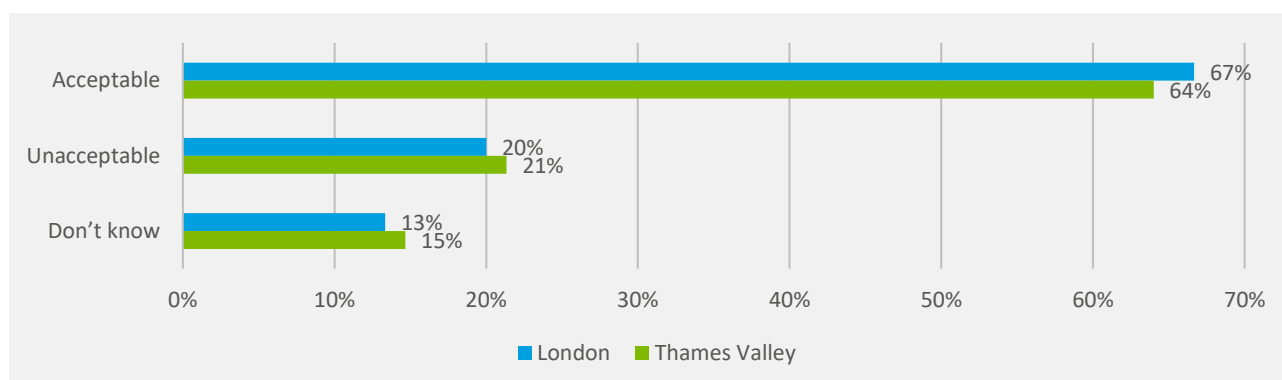
Figure 4.16: Customer support for the proposed plan for the region - non-households (n = 300)

Around a quarter of household respondents (London 24%; Thames Valley 25%) stated that the plan was not acceptable, along with about one-fifth of non-household respondents (London 20%; Thames Valley

21%). Affordability ("cannot afford to pay the proposed bill amount") was the most common reason given amongst households for why the plan was unacceptable (22% of households). A notable proportion of non-household respondents (26%) also stated that they were against bill increases in principle (i.e. customers should not have to pay for the plan) (Appendix 6).

Finally, around one in ten household and one in seven non-household respondents answered "don't know / can't say". These respondents were also more likely to answer "don't know / can't say" to other questions in the survey as well.

Breakdown of customer support results

The basic segmentation of the customer support results for households by socio-economic group (SEG) showed the expected pattern for the London, with higher levels of acceptability in higher groups (Figure 4.17). A more even set of results, however, was observed for Thames Valley (Figure 4.18), suggesting that household circumstances were not necessarily the sole driving factor determining the level of support for the plan.
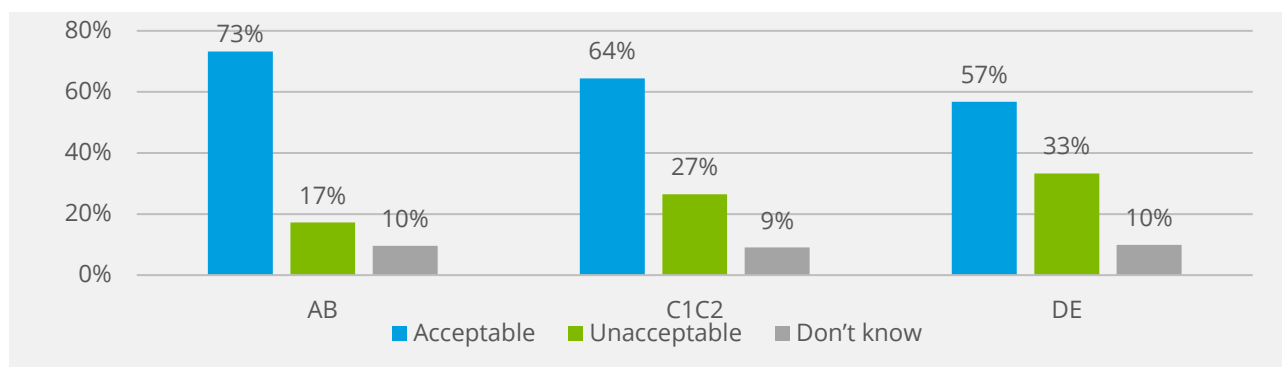
Figure 4.17: Plan acceptability by socio-economic group - households (London) (n = 502)
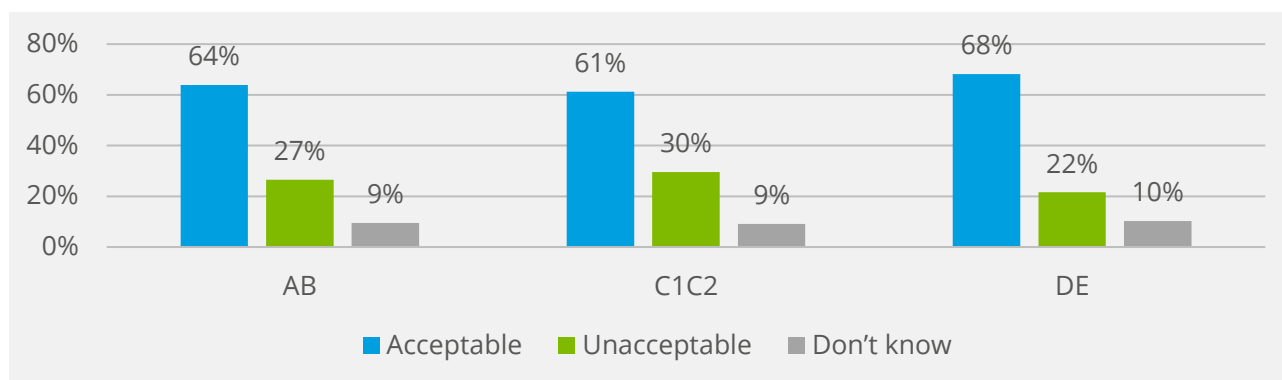
Figure 4.18: Plan acceptability by socio-economic group – households (Thames Valley) (n = 502)

Econometric analysis was carried out to further examine the driving factors for customer support for the plan, utilising the household respondent profile and attitudinal responses data in order to control for multiple factors[7] (Appendix 6). The aim of the analysis was to identify which factors increased (or decreased)

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[7] Note that this analysis was conducted for household response data only (n = 1,004). The relatively small sample size for non-household respondents limited the extent of analysis that could be conducted.

the likelihood of a respondent stating that the plan was acceptable. Models were estimated for both London and Thames Valley respondents (n = 502 each) as well as an overall pooled sample model (n = 1,004). Respondent characteristics used in the analysis included SEG, income, age, and gender. Attitudinal responses included answers to questions about respondents' awareness of the risk of sewer flooding and the need to upgrade sewer treatment works (STW). Findings are summarised in Table 4.2.

Table 4.2: **Main factors determining the acceptability of the plan – household respondents**

More likely to state the plan was acceptable if…	More likely to state the plan was unacceptable if…
• Respondent had a higher income • Respondent was aware of the need to upgrade sewage treatment works • Respondent was aware of increasing flood risk	• Respondent was in a lower socio-economic group • Respondent had a higher current bill amount • Respondent preferred a reduced scale of plan

For the most part, the findings from the analysis align well to reasonable prior expectations. In particular, respondents who had stated that they were (at least somewhat) aware of future challenges facing the wastewater system - both in terms of the pressure from population growth requiring STW upgrades to protect river quality, and the increasing frequency of extreme storms leading to a higher risk of flooding – were more likely to support the plan. Higher income respondents – all else equal – were also more likely to state that the plan was acceptable.

Conversely, driving factors for respondents not supporting the plan included household circumstances (SEG) along with current bill amount, with customers currently paying higher bill amounts – all else equal – being less likely to support the plan.

4.2.2   Preference between alternative plans

After stating whether the plan was acceptable or unacceptable, respondents were presented with alternative scenarios – an enhanced plan, the current proposed plan, and reduced plan(s) (see Section 2.2) – and asked to select their preferred plan on the balance of targets/outcomes and the impact on customer bills.

Overall result
The most preferred plan for both household and non-household respondents was the current proposed plan (Figure 4.19, Figure 4.20). This was particularly the case for the Thames Valley: there was a clear distinction between preference for the current proposed plan (households 45%; non-households 49%) and the second most preferred alternative, the enhanced plan (households 29%; non-households 29%). For London there was less of a distinction between the preference for the current proposed plan (households 35%; non-households 30%) and the enhanced plan (households 29%; non-households 29%). Where respondents opted for a reduced plan in London, household respondents favoured the focus on sewer overflows (21% vs. 17%), whilst non-household respondents slightly favoured the overall reduced plan (21% vs. 19%).
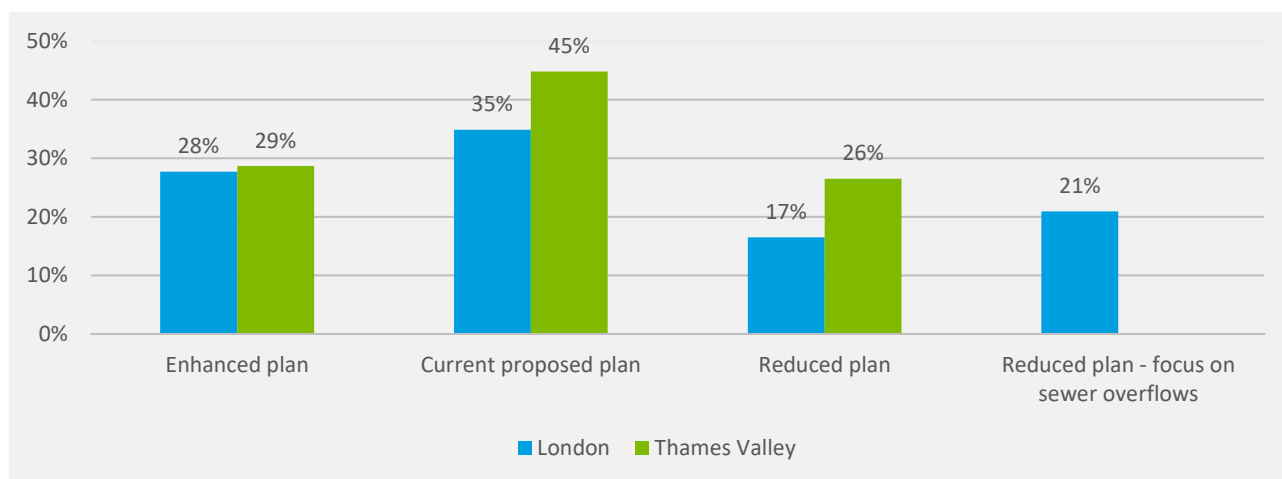
Figure 4.19: Preferred plan - households (n = 1,004)
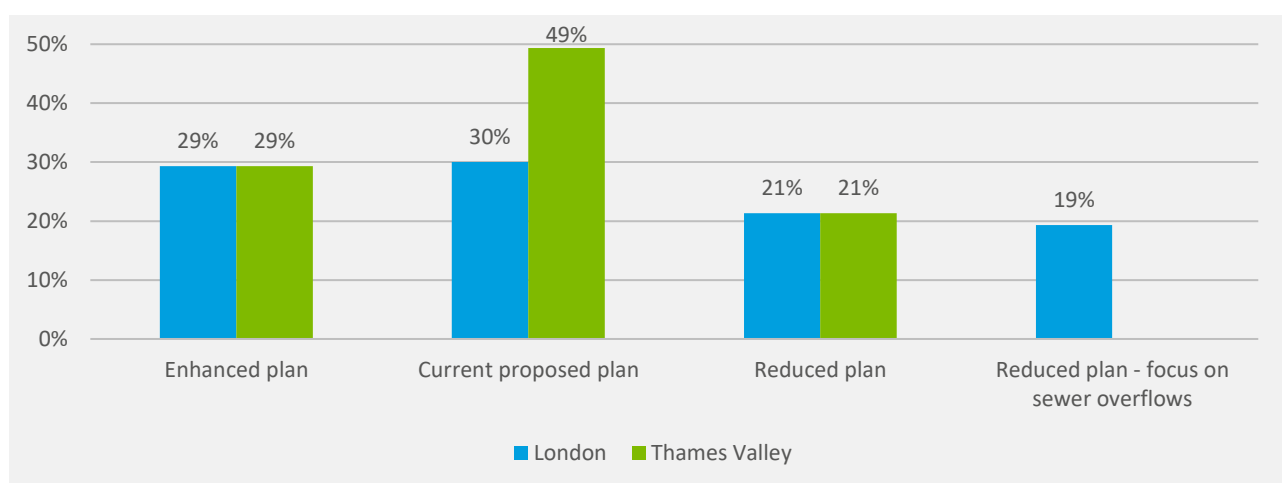
Figure 4.20: Preferred plan - non-households (n = 300)

The most frequent reasons given for selecting the current plan as most preferred were "the plan is value for money in terms of what it provides for the cost" (households 24%; non-households 27%) and "the plan is more affordable" [than the enhanced plan] (households 20%; non-households 27%). Respondents who selected the enhanced plan did so because of "the positive impact that the plan will have on the environment" (households 34%; non-households 36%) and because "the plan will deliver the benefits sooner" (households 21%; non-households 14%) (Appendix 6).

The most common reasons cited for choosing the reduced plan were "the plan is more affordable than other plans" (households 37%; non-households 31%), and "the plan is value for money in terms of what it provides for the cost" (households 20%; non-households 29%).

Whilst there was no stand-out plan in terms of a majority level of support from respondents, the combined view indicated that the weight of customer support was for – at least – the proposed level of action. The results from Figure 4.19 and Figure 4.20 show that in total, respondents selecting the current proposed plan or more action (enhanced plan) (households 28%, non-households 29%) as their preferred plan outweighed the preference for a reduced scope of plan (households 22%; non-households 21%).

Added to this, around 65% of household and 66% of non-household respondents selected the current and enhanced plans as their first and second choices.

Econometric analysis was also carried out to examine the factors influencing the plan preference responses, again utilising household respondent profiles and attitudinal responses data. Table 4.3 summarises the findings. Overall, a mixed set of factors were found to explain responses.

Table 4.3: **Main factors determining choice of preferred plan – household respondents**

Plan	Determining factors for preference between alternative plans
Enhanced plan	• Higher income: more likely to choose (London) • Respondents with no previous service issues: more likely to choose (London) • Higher current bill amount: more likely to choose (London) • Younger respondents: more likely to choose plan (Thames Valley)
Current proposed plan	• Female respondents: more likely to choose (Thames Valley) • Respondents aware of increasing flood risk: more likely to choose (Thames Valley) • Respondents with no previous service issues: more likely to choose (Thames Valley) • Older respondents: more likely to choose (Thames Valley) • Respondents with higher current bill amount: less likely to choose (Thames Valley) • No clear overall driving factors for London respondents
Reduced plan(s)	• Higher income: less likely to choose (London) • Respondents with no previous service issues: less likely to choose (London) • Younger respondents: less likely to choose (London) • Lower income: more likely to choose (Thames Valley) • Respondents less aware of increasing flood risk: more likely to choose (Thames Valley) • Respondents with no previous service issues: less likely to choose (Thames Valley)

4.2.3   Increased investment to reduce storm overflows

The follow-up questions that gauged respondents' views on added investment to minimise / target zero spills in the 25-year planning period showed a sizeable level of customer support (Figure 4.21; Figure 4.22; Figure 4.23; Figure 4.24). For household respondents, support was greatest if the more stringent target for spills was achieved through additional investment (London 57%; Thames Valley 51%) rather than at the expense of efforts to reduce flooding (London 48%; Thames Valley 43%). In contrast, a greater proportion of non-household respondents were prepared to trade-off reducing spills at the expense of flooding (London 64%; Thames Valley 55%) compared to requiring an added investment cost (London 57%; Thames Valley 54%).
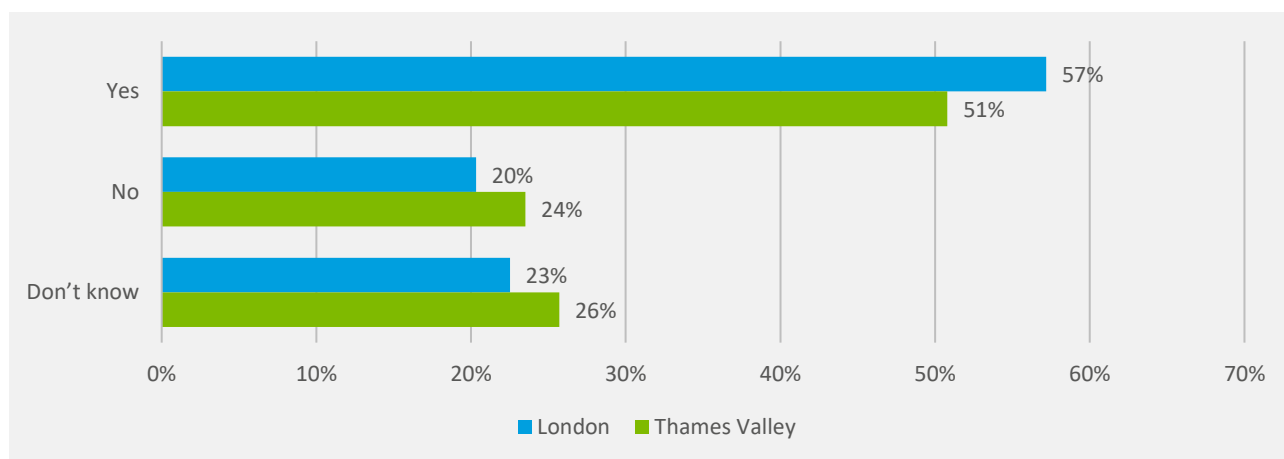
Figure 4.21: Support for more stringent spills target at an added cost - households (n = 1004)
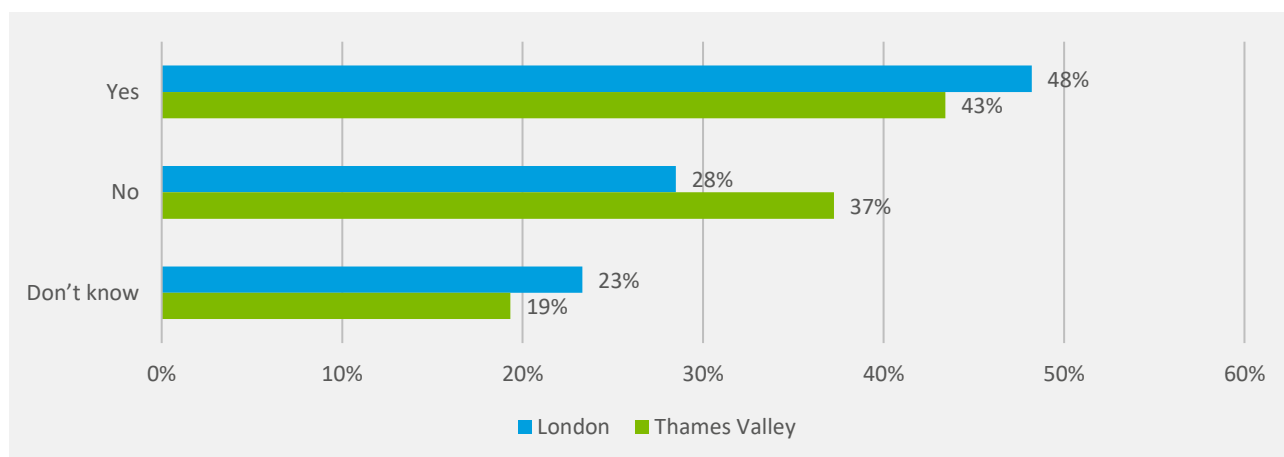
Figure 4.22: Support for more stringent spills target at expense of protection against flooding from sewers - households (n = 1,004)
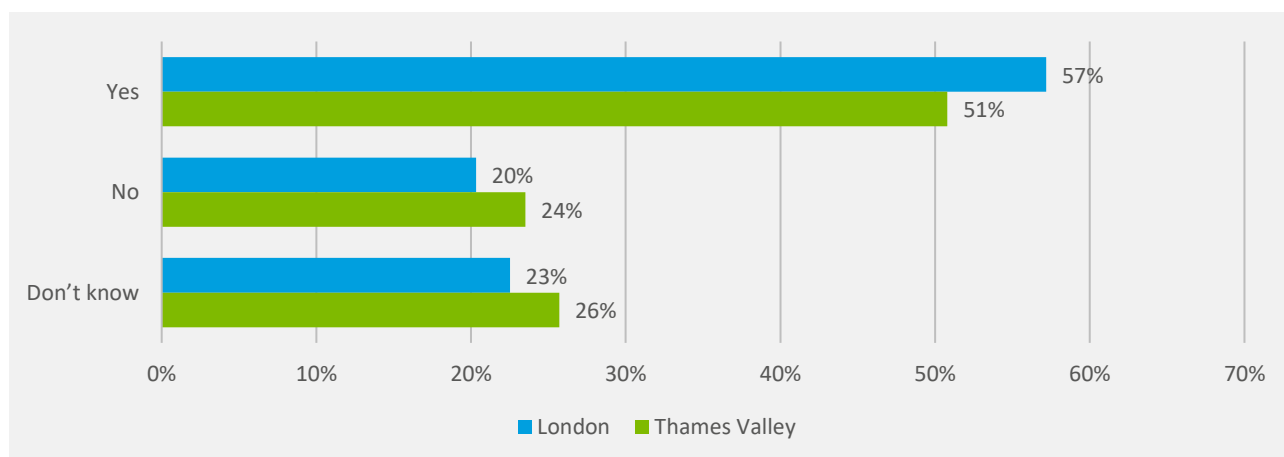
Figure 4.23: Support for more stringent spills target at an added cost – non-households (n = 300)
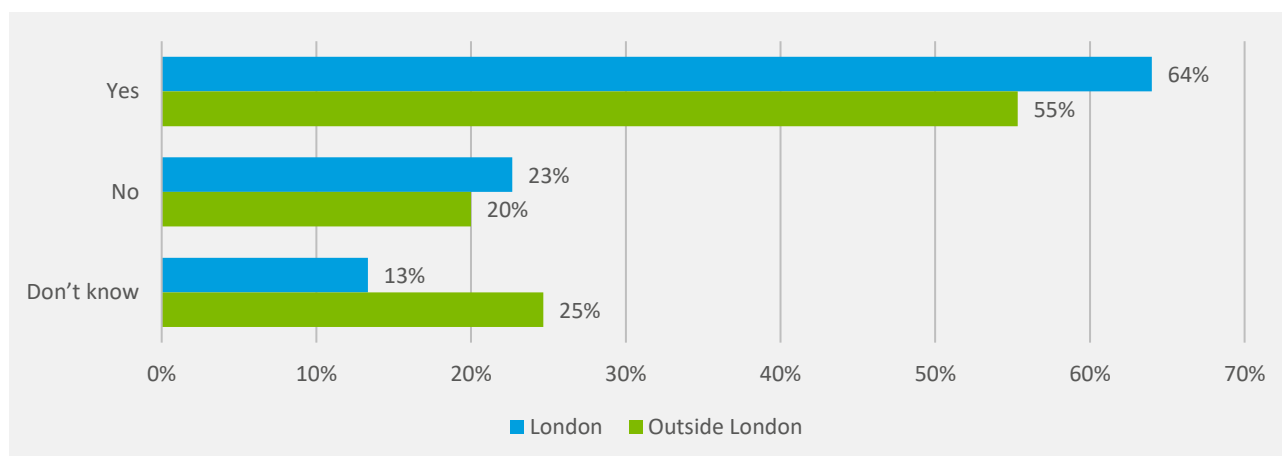
Figure 4.24: Support for more stringent spills target at expense of protection against flooding from sewers – non-households (n = 300)

Household respondents who supported reducing spills in these follow-up questions were less likely to have selected the reduced plan alternative(s) in the plan preference question and were typically were less sensitive to the cost of the plan. These respondents were more likely to be in a higher socio-economic group, have lower water bills and be higher earners. Respondents who found the DWMP acceptable were also more likely to be aware of the need to upgrade the STWs because of future pressures on the wastewater system.

4.2.4   Overall customer sentiment

The overall customer sentiment regarding the plan was analysed by segmenting the household sample based on responses to a series of questions in order to identify consistent patterns in responses concerning the ambition of the plan targets and affordability. Respondents were segmented based on their responses to the preferred plan choice, the affordability of the plan, and pace of investment. Findings are summarised in Figure 4.25. Overall, the desire for a more ambitious plan was limited amongst respondents who preferred a fast pace of investment (i.e. deliver targets earlier) and also opted for the enhanced plan (i.e. deliver more than the current proposed plan).

More action needed (<10% of sample)	Desire for a more ambitious plan was limited, in terms of those who preferred a fast pace of investment and also opted for the enhanced plan.	• More likely to have a higher income. • More likely to say that the wastewater system should be improved to remove all storm overflows. • More likely to accept an additional bill increase or a reduction in flooding investment to meet more stringent spills targets.
Mixed views on pace and spills but plan generally acceptable (~80% of sample)	The majority of respondents had more mixed views on pace and the balance between spills, flooding and bill impact, but generally supported the preferred plan (~70% accepted the plan).	• More likely to have a current combined wastewater and water bill amount less than £450 per year. • More likely to choose the preferred plan. • Acceptability of preferred plan for this group is around 70%.
Unaffordable (<10% of sample)	Cost - not ambition – is the main reason why the plan is not acceptable to some. This was key concern for a minority of customers.	• More likely to choose the reduced plan compared to the "average" respondent. • More likely to choose the steady pace of investment. • Mainly SEG DE and C1C2 respondents (esp. London).

Figure 4.25: Overall customer sentiment on the plan

Overall, the desire for a more ambitious plan was limited amongst respondents in terms of those who preferred a fast pace of investment (i.e. deliver targets earlier) and also opted for the enhanced plan (i.e. deliver more than the current proposed plan). This segment accounted for just under 10% of the sample, and was characterised by higher-income respondents, who were more likely to have said that the wastewater system should be improved to remove all storm overflows and – consistently with this view – were more likely to support more stringent targets to reduce spills at added investment cost or at the expense of protection from flooding. At the opposite end of the scale, the cost of the plan rather than the level of ambition was the main reason why the plan was not acceptable. This was an overriding concern for a minority of customers: just under 10% in total. These respondents were characterised by lower SEG groups, particularly in London, and a preference for the reduced plan options.

The majority of respondents sat between these two viewpoints, but their views were more mixed on pace and the balance between spills, flooding, and bill impact, meaning it was not possible to further segment the sample along the lines of consistent response patterns. Notwithstanding, the key characteristics for this group was their stated support for the current proposed plan, both in terms of its acceptability (around 70% for this group) and their preference for it over alternative plans. A conclusion to draw, therefore, is that a balanced plan addressing both sewer flooding and spills, along with enhancing the resilience of the wastewater system and protecting the long-term quality of the river environment through STW upgrades, is consistent with the expectations of customers. Moreover, the scale of investment and impact on customer bills is not judged to be disproportionate.

4.3   Respondent feedback

Respondents were asked to provide feedback on the survey to help test the validity of the data gathered, particularly in terms of their understanding and the perceived credibility of the exercise. A large proportion of household respondents stated that they found the survey easy ("very" or "fairly easy") (approx. 50% for both London and Thames Valley) (Figure 4.26). Furthermore, the largest proportion of household responses

for overall survey feedback was positive and included comments describing the survey as interesting (London (51%; Thames Valley 48%) and educational (London 26%; Thames Valley 27%). That said, a notable proportion also stated that the survey was too long (London 15%; Thames Valley 17%).
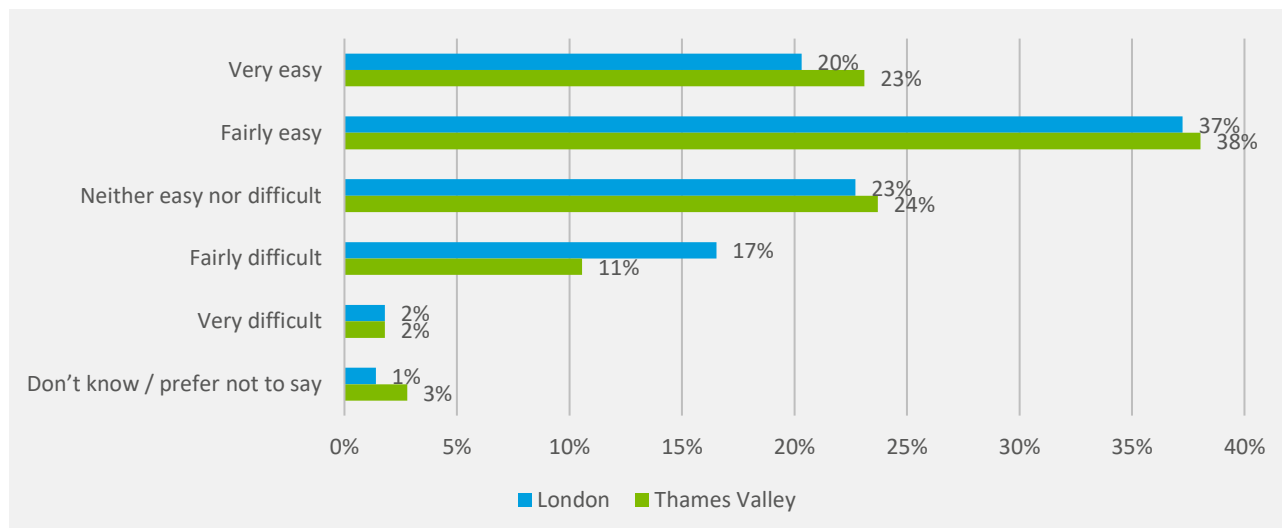
Figure 4.26: Ease/difficulty of the survey - households (n = 1,004)
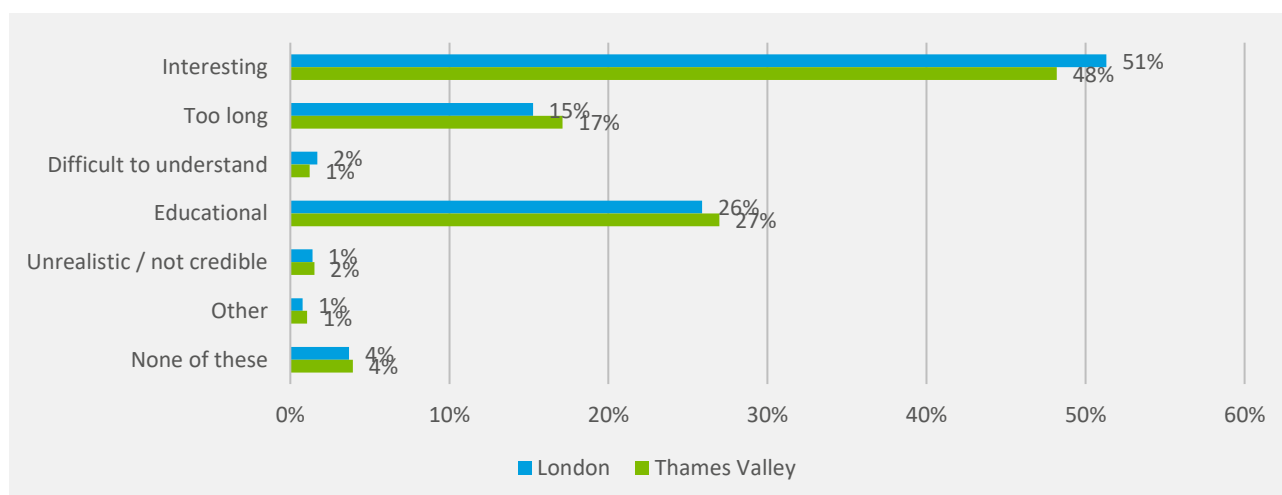
Figure 4.27: Overall survey feedback - households (n = 1,004)

A large proportion of non-household respondents also stated that the survey was easy ("very" or "fairly easy") (London 57%; Thames Valley 61%) (Figure 4.26). General feedback on the survey was also positive, with very few respondents indicating that the survey was difficult to understand (2%). Just under 50% of the London non-household respondents noted that the survey was interesting and 32% stated it was educational.
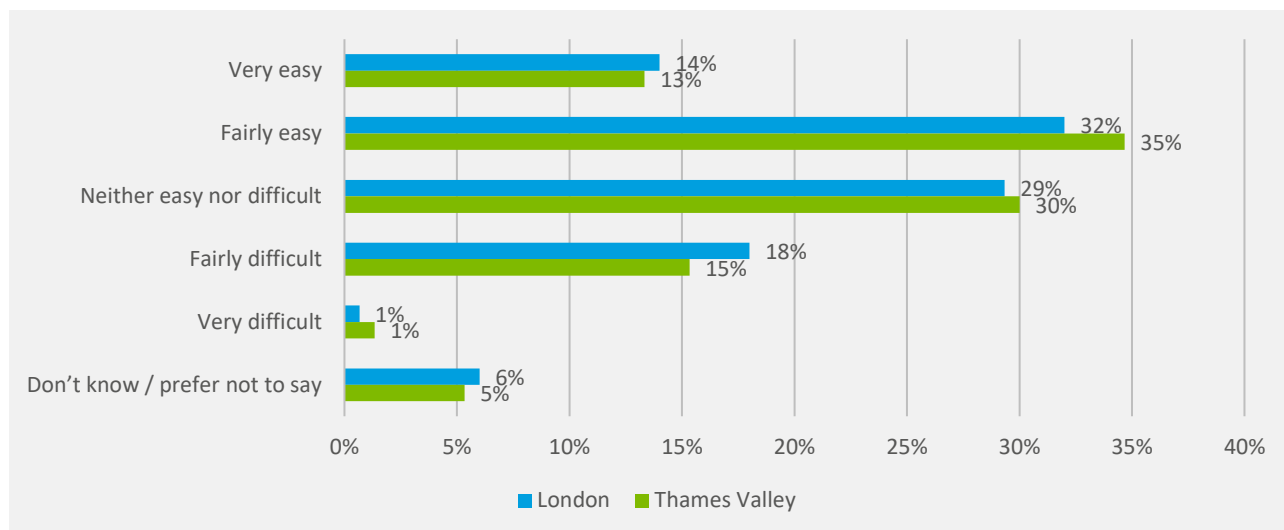
Figure 4.28: Ease/difficulty of the survey - non-households (n = 300)
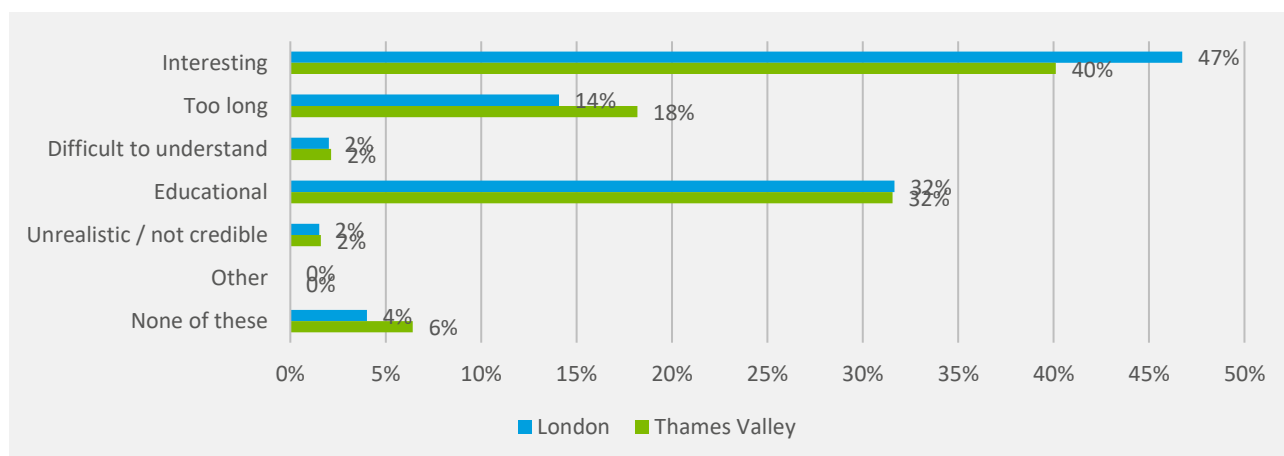
Figure 4.29: Overall survey feedback - non-households (n = 300)

Overall, the majority of respondents were confident that plan would address the future challenges facing the wastewater system. Above 70% of both London and Thames Valley household and non-household respondents stated that they were either "Very confident" or "Somewhat confident" in the plan. (Figure 4.30, Figure 4.31)
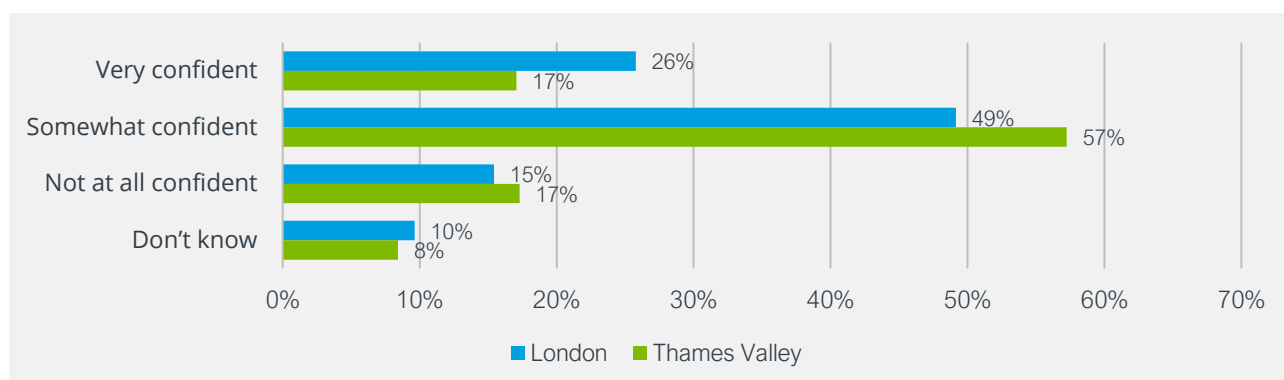
Figure 4.30: Confidence that the plan will address future challenges - households (n = 1,004)
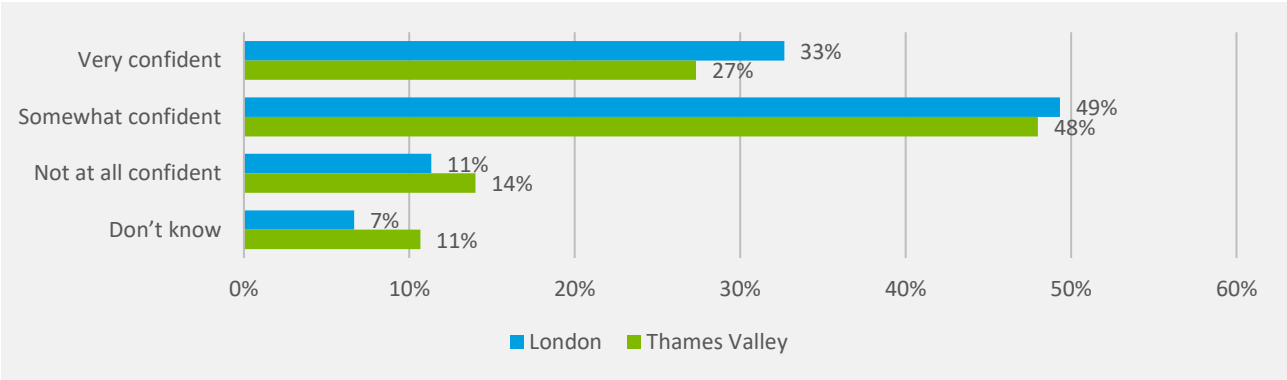
Figure 4.31: Confidence that the plan will address future challenges - non-household (n = 300)

5. Conclusion

5.1 Summary

Thames Water is preparing a Drainage and Wastewater Management Plan (DWMP), which will set out how drainage and wastewater systems in London and the Thames Valley will be maintained and improved over the period 2025 – 2050. The plan will address future challenges including the changing climate, changing weather patterns, and population growth.

This report summarises the approach, method, analysis and findings from research that looked at customer support for the preferred plan. The survey content was developed using the DWMP consultation documents. Pre-testing and independent review informed the revisions and improvements to explanatory materials to ensure that they were clear, easily understood and neutral in presentation. The household sample was representative of the wastewater customer base, reflecting the circumstances of customers in the London and Thames Valley area. The non-household sample reflects a cross-section of businesses and organisations across the region.

Respondent feedback indicated that the survey was well-received. It was found to be informative, understandable and straightforward to complete. Overall, it is judged that respondents were engaged in the topic and gave considered responses. The wider context to the research – such as national media focus on the drought and spills – likely enhanced its relevance in respondents' minds, with "front-page coverage" of extreme events and the health of the water environment providing very tangible examples of the types of strategic issue being addressed by the DWMP.

The findings from the customer research have supported the post-consultation review of the final plan ahead of its submission in May 2023.

5.2 Key findings

The research findings provide a clear view of customer support for the plan:

- Overall, a good level of support for the preferred plan was found, both in terms of its acceptability (>60%) and the preference for it over alternative scenarios, where on balance it was the most preferred option.

- Moreover, a broader perspective shows that combined support for the preferred plan or for a greater level of action though an enhanced plan (~70%) outweighed support for a reduced scope of plan (~30%). Notwithstanding the overall positive results and support for the preferred plan, affordability was a key concern for a relatively small proportion of customers (<10%).

- It is evident, however, that there is a mixed view from customers as to what the most important challenges are for the plan to address. Support for eliminating spills was not universal – particularly if at added cost or at the expense of other investments. Wider responses showed that reducing flooding and protecting the river environment over the longer term from day-to-day discharges from works are viewed as important targets, in aggregate ranking higher than reducing spills.

- There is a high level of support for the use of new solutions that involve building partnerships.

Overall, the study findings suggest that a balanced plan making progress across flooding, resilience, STW upgrades and spills would likely best meet customer expectations in the round – rather than an initial all out focus on any particular challenge that would be to the detriment of other needs identified in the DWMP process.

While the research findings are judged to be robust and fit for purpose for informing the post-consultation review of the DWMP, it is also useful to note the main limitations, which by-and-large relate to appropriate interpretation of the results. Foremost, the survey materials presented the bill impact for the DWMP and for simplicity, bill impacts over 25 years were averaged out. However, in reality, the bill impact will vary between 2025 – 2050 and an "averaged-out" bill impact overstates the effect on household budgets in the early years of the plan (and conversely understates the impact in later years). It is likely, though, that some respondents discounted the bill impact to some degree, given it does not impact household budgets in the short-term, even in light of current pressures on household budgets.

Respondents were informed that customer bills over the 2025 – 2050 time period would also be affected by other investments, but at this point it was not possible to say how these would change the overall bill. The study results should be interpreted within this framing, reflecting customer views on the ambition of the DWMP targets and associated costs (starting from 2025) independent of other components of the PR24 Business Plan and Long Term Delivery Strategy (LDTS). A further test of customer support is required as part of the formulation of the PR24 Business Plan, setting the initial DWMP investments against other investment areas, and providing a full view of the customer bills for the 2025 - 2030 time period.

5.3 Consistency with wider customer research findings

In general, the findings from this study are consistent at a high level with the consolidated insights from previous research conducted by Thames Water (Box 5.1), particularly in terms of respondents ranking reducing sewer flooding over environmental outcomes and the finding that overflows and spills are not in the "top tier" of priorities and longer-term river health is typically more important. It was also found that there was strong support for use of new solutions in this research, which was expected based on results from the 2021 DWMP qualitative research with household customers[8].

However, this study provides added insight by demonstrating that sewer flooding is not a standalone priority for wastewater services. This is consistent with the longer-term focus of this research and the encompassing nature of DWMP which highlights to customers that resilience to extreme storms, sewer flooding, spills, and protecting rivers are not independent issues with separate drivers. Rather, climate and population growth are pressures on the wastewater *system* and it is not a case of simply "fixing" one problem.

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[8] eftec and ICS (2022) Drainage and Wastewater Management Plan – Customer Research. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/drainage-and-wastewater/appendix-h-customer-engagement.pdf (accessed October 2022).

Box 5.1: PR24 insights (from What Customers, Communities and Stakeholders Want (Version 16.1, August 2022)

- Combined customer ranking of Wants

    o High priority**: prevent sewer flooding** (WS2); reliable sewerage system 24/7 (WS1)

    o Medium priority: **stop polluting rivers and improve their quality** (ENV2); **reliable and sustainable wastewater service in the future** (WS3)

- Relative priority of enhancement areas

    o Mid-ranked (4th out 8): **reduce river spills**

- Customer preferences for common PCs

    o High importance: internal sewer flooding; external sewer flooding

    o Middle importance: pollution incidents, river water quality

    o Low importance: storm overflows

- Relative priority of Vision 2050 Goals

    o Stop all sewerage flooding (3rd out of 19)

    o Keep bills affordable (5th)

    o Overflows and spills (7th)

    o Improve rivers (9th)

    o Reduce rainwater flooding (11th)

Appendix 1 : PR24 customer research principles

This table presents the alignment to the high-quality research topics set out in Ofwat PR24 and beyond: Customer engagement[9].

Topic	DWMP customer research
Useful and contextualised	The survey explained the overall context of the research and outlined what the results would be used for. All information presented to respondents in the survey was drawn from the published DWMP consultation documents and technical appendices.
Neutrally designed	The survey was intended to be neutral and comments from the CCW review were taken on board to modify language to avoid leading the respondent. As above, all information (facts/figures) stated in the survey materials was consistent with the published DWMP consultation materials.
Fit for purpose	Respondent understanding and credibility of survey materials and questions was tested during cognitive interviews.
Inclusive	The research was implemented using sampling quotas specified in Thames Water's customer research and engagement sampling guidance to ensure that the diversity of the population in the region was reflected. The research focused on bill-payers, given the context of the research. The online implementation means there was no provision for digitally excluded customers within this specific research study.
Continual	The survey is a continuation of customer research conducted in 2021 which informed the options appraisal and programme appraisal of the DWMP.
Independently assured	The survey material was reviewed by CCW. Atkins provided the information/data inputs for the survey.
Shared in full with others	A summary and technical report will be available.
Ethical	The survey followed MRS principles and was implemented using an MRS accredited research partner.

[9] See: https://www.ofwat.gov.uk/publication/pr24-and-beyond-customer-engagement-policy-a-position-paper/

Appendix 2 : Summary of survey testing

This appendix summarises the main findings from the survey design and testing phase of the customer research.

A2.1 Objectives

The purpose of the DWMP survey design and testing phase was to:

- Test whether customers understood what the survey was about and what its purpose was;

- Understand what and how much contextual information was required by respondents;

- Test the layout and appearance of the survey;

- Test how much effort was required to complete the survey;

- Assess the relevance of visual materials;

- Assess how easy or difficult it was to complete the survey and to assess the clarity of instructions; and

- Understand the thinking behind how customers made their choices.

A2.2 Research Process

The survey design and testing phase utilised nine cognitive interviews undertaken in July 2022. The cognitive interviews were conducted online.

The testing phase assessed all the materials (questionnaire wording and showcards) to check that they were clearly understood by respondents. It sought to clarify any ambiguities and ensured that information could be presented in the most meaningful way to customers. It therefore played a crucial part in making sure that the survey was fit for purpose before moving on to the pilot stage and eventually, the main stage of the survey.

In terms of recruitment, all respondents had to be solely, or jointly, responsible for paying their water bills. In addition, a broadly equitable split of customers in terms of age, gender and socio-economic group was desirable, and was duly achieved.

A2.3 Key Findings

Survey Understanding

Overall, respondents understood what the survey was about and what they were being asked to do. Respondents gave various responses demonstrating their understanding as indicated in Table A1 below.

Table A1: Purpose of survey

Purpose of Survey	Number of Mentions
Increasing investment in the sewerage system	8
Priorities for sewer flooding, sewage spills and extra system capacity	4
Willingness to pay for future investments	3
Challenges that Thames Water is facing	3
How quickly any investment should take place	1

Some verbatim comments illustrating the above categories are shown below.

Increasing investment in the sewerage system

"...to obtain my views on investing in the sewerage system"

"...evaluating investment plans for improvements to wastewater, sewer flooding, drainage and river overflows..."

"...how we respond to Thames Water investing more in the sewer system"

Willingness to pay for future investment into the wastewater management system

"...trying to work out priorities and how much people are willing to pay for those priorities"

"...setting priorities and financial impacts on household bills on how to achieve them"

Priorities for various wastewater attributes

"...how to make improvements with regard to sewage spills and handling increased capacity"

"How I'd prefer to invest in terms of flooding and sewers etc..."

"Assessing different plans / proposals for what Thames Water is wanting to achieve"

Challenges Thames Water is facing

"...challenges water companies are facing such as population increase and climate change and the pressure that puts on the infrastructure"

"The system is not really sufficient to take account of climate changes, changes to the environment and population growth"

A2.4 Views on Thames Water consulting the public

Overall, respondents thought it was important for Thames Water to talk to customers about priorities for the wastewater infrastructure.

"They're actively seeking out the general public's views rather than just going ahead"

"It's very important to part because it will have an impact on household bills, which is especially important at the moment"

However, there was some doubt as to how much respondents' answers would actually influence Thames Water's planning, with several questioning whether the company would take any action as a result.

"...it's being driven by what government needs and what regulators are demanding"

"They might listen, but whether they take any action...?"

"It will have minimal influence, it might give them food for thought if others say the same, but I'm a realist – I think they know what they want and are looking for support"

"Hopefully they'll take it on board when everyone's answered, but it won't have much influence on decision making as all the rules and regulations are set by government"

Alternatively, one or two people thought the survey could influence Thames Water's plans.

"The options will definitely influence plans; there's no reason not to go with the majority choice between A & B"

"They'll take a fair look at all the responses and go with the majority"

A2.5 Ease of survey completion

The majority of respondents found the survey easy to understand and straightforward to complete. As well as having a clear and concise layout, respondents felt the subject matter was interesting, and something they could easily engage with.

"It was pretty easy to understand and the cards were quite well laid out"

"Reading the information, followed by a question made it very easy to follow"

"I really like how the information was set out in the showcards"

"It was straightforward because it had lots of links to give you information; it was set out quite well"

On occasion, the quantity of content and reading required was commented on, but this did not make it any less straightforward.

"The survey and wording were fine, there was a lot of content and reading to do, but this did not make it difficult to understand"

"There was a lot of reading, at times it felt like a comprehension, but it wasn't difficult"

A2.6 Understanding of the DWMP

Plan context

Before getting into the detail of the plan, various background information was presented to respondents about the wastewater system and what Thames Water was and was not responsible for, as shown in Figure A1 below. Respondents felt the information was straightforward and easy to understand, though they could not remember the exact terminology of combined sewers and surface water sewers without revisiting Figure A1. Respondents were also clear on what Thames Water's responsibilities are regarding wastewater.
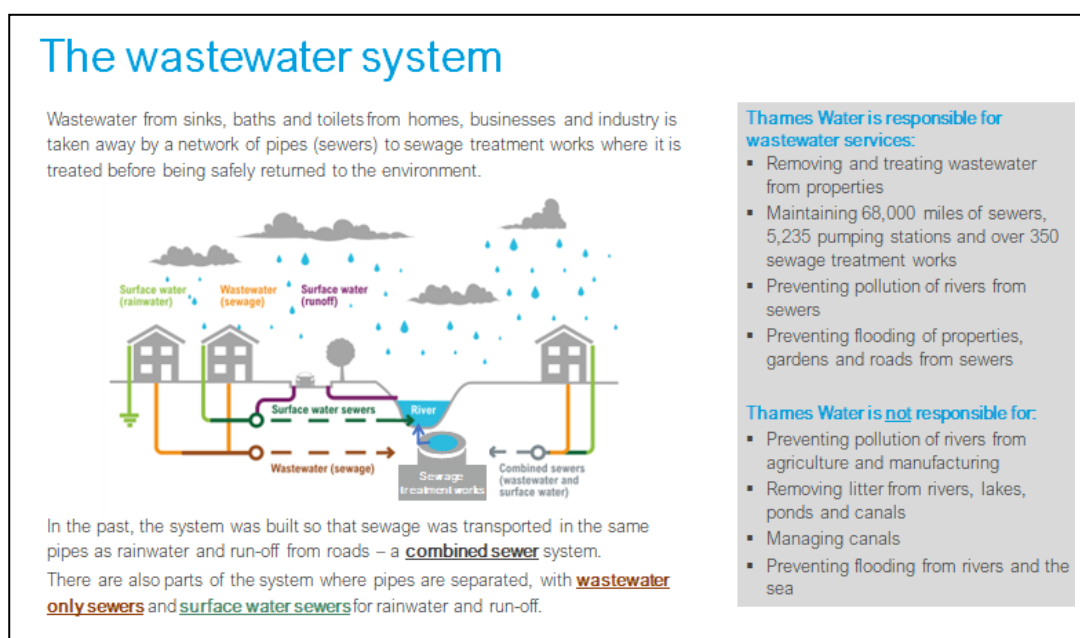
Figure A1: **Wastewater system background**

In addition to this background information, the survey also explained a number of pressures and challenges on the wastewater system including: the increasing population, climate change, the loss of green areas, and protecting the environment. When asked whether they could remember what the challenges were in the follow-up debrief, respondents frequently recalled climate change and population growth, and to a lesser extent protecting the environment, but the loss of green areas was not readily recalled.

Aspects of the plan

The explanation of the plan focused on a number of areas including maintaining a resilient wastewater system, protecting the environment, reducing sewer overflows into rivers, reducing property flooding, and using green solutions.

Overall, respondents said that each element of the plan was clearly explained and that there was nothing in the attribute descriptions which was hard to understand.

"They were easy to understand and reasonably well set out; the content was succinct and there was little jargon"

"They're all clearly laid out, with good formatting and presenting the issues and scenarios"

Furthermore, respondents thought the plan target area headings were self-explanatory, while the accompanying descriptions were a good 'fit' with the headings.

As the cognitive interviews were undertaken in two stages, the descriptions were updated in light of any extra detail or any content that needed tweaking, such as how the rate of improvement was represented.

The cognitive interviews involved asking specific follow-up questions about each aspect of the plan in order to check respondents' understanding. In regard to Figure A2, respondents were asked what they thought was meant by a 'resilient wastewater system'. Various responses were provided such as:

- Fit for the future, can withstand heavy rainfall;

- Robustness of the system and not being overwhelmed;

- Able to withstand various pressures;

- What it's going to do and how it's going to protect the system;

- Hardy, sturdy, working efficiently and effectively; and

- Able to continue with dealing any problems the system faces.

These responses show that respondents had a good understanding of the information that was presented.
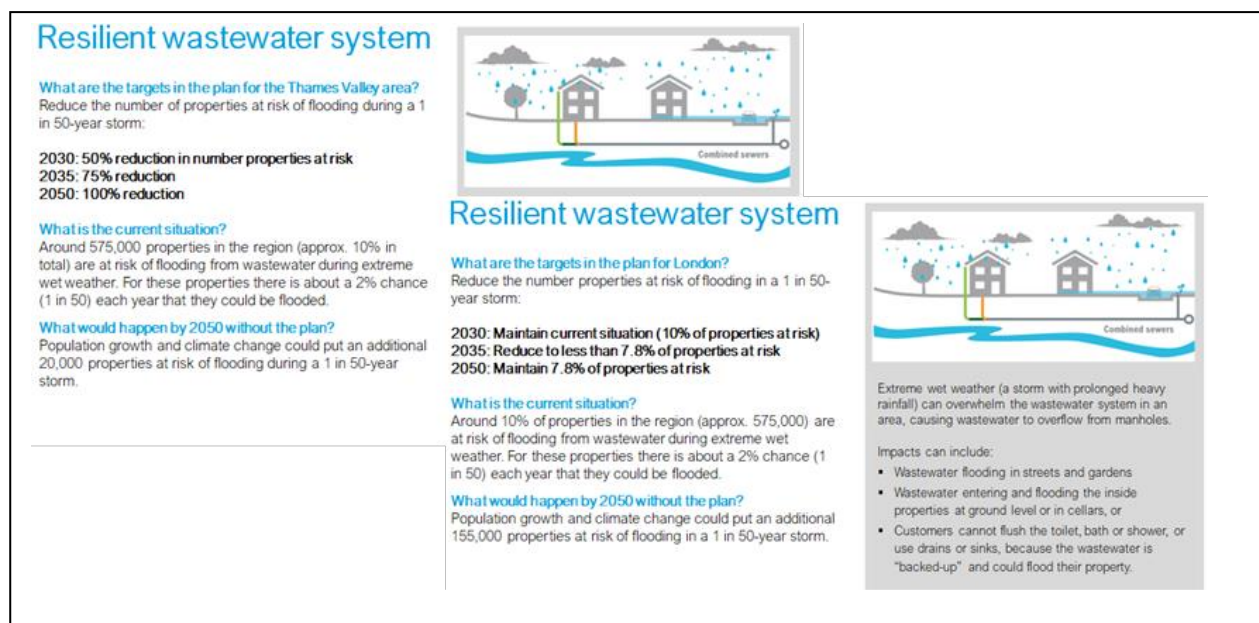
Figure A2: Resilient wastewater system

The top left graphic in Figure A2 was used in the first round of cognitive interviewing and the bottom right was used in the second round, the latter showing more specific details about reducing the number of properties at risk of sewer flooding in a 1 in 50-year storm to enable a more precise understanding of the improvements

Another aspect of the DWMP shown to respondents was 'protect the environment', as shown in Figure A3 below.
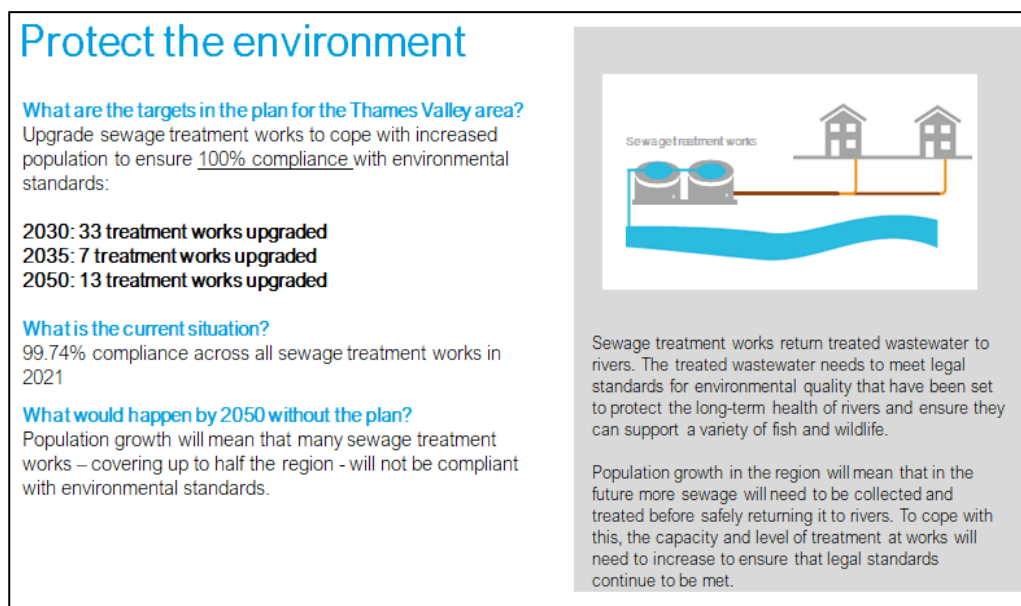
Figure A3: Protect the environment

Respondents were again asked what this meant to them, with the responses showing a good understanding of the issue*.*

> *"…standards and quality of work at sewage treatment works and not putting 'crap' into the environment"*

> *"It's about the safety, so they look after the environment"*

Respondents were also asked whether there 'protecting the environment' was the right heading. Respondents were fairly ambivalent about various alternatives like 'keep up with population growth' or 'upgrading wastewater / sewage treatment works'. Some respondents preferred sewage treatment, while others preferred wastewater treatment in the attribute description; there was no clear overall preference.

A third element of the plan that was tested was 'green solutions' as shown in Figure A4 below.
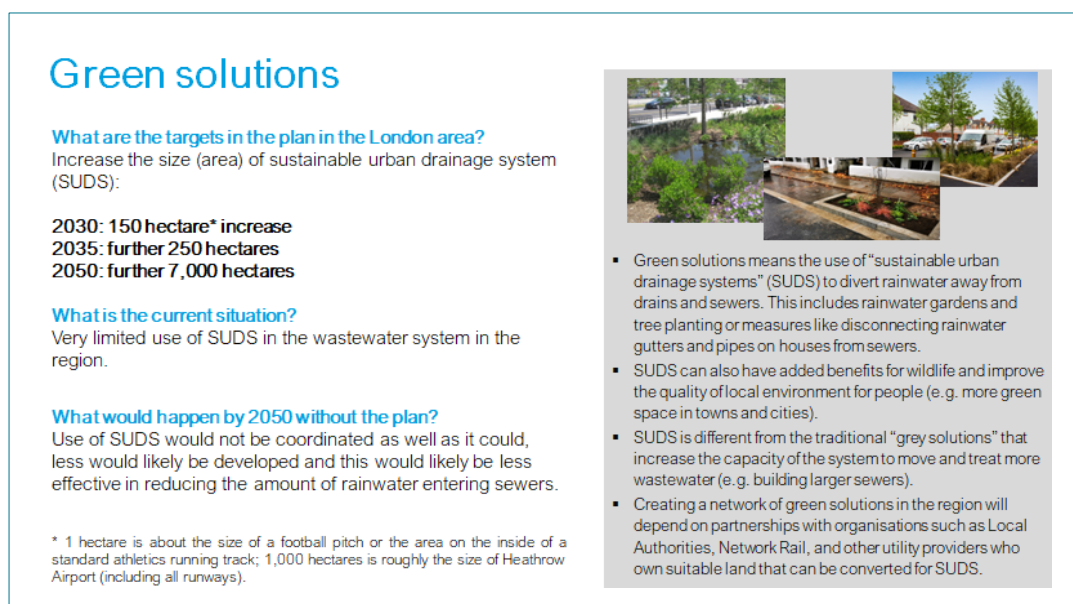
Figure A4: Green solutions

Respondents were asked whether the DWMP should have 'an ambitious target for green solutions, which is a timely process and reliant on other organisations', or whether 'it should concentrate on increasing the capacity of the current wastewater system which is in direct control of Thames Water'. Five of the nine respondents thought the former, three the latter and one didn't know.

Those in favour of more ambitious targets cited the following reasons:

- The future should be considered now, but not at the expense or compromising of the immediate; common sense should prevail;

- It's better for the environment;

- It should be included as part of any new property development plans by local councils;

- The benefits outweigh the costs and difficulties;

- It feels like developers and Local Authorities should be able to do it; and

- It's greener and aesthetically more pleasing, resulting in nicer areas in local communities.

Respondents who thought Thames Water should concentrate investment within its direct control provided the following rationale:

- Having a long-term goal is something for the future;

- Relying on others may not work as everyone has their own ideas;

- It's great to be over ambitious, but how manageable are the targets;

- Tackle the immediate now and then focus on other things;

- Anything that's in control of Thames Water, they should be doing it; and

- They know what to do and how to make it happen.

All these reasons were captured as open-ended responses in the survey to enable pre-coded response options to be included in the main survey.

As part of the first cognitive debrief, respondents were asked whether they understood the risks associated with achieving the ambitious targets around SUDS. Most respondents said they understood the risks, one respondent said that the targets were necessities to enable more rainwater to enter the sewers. Another said SUDS 'simply slow down or even prevent sewer overflows'. However, there were two respondents who did not really understand the risks of not achieving the targets, and therefore felt that they needed to be 'spelled out' more clearly.

As part of the second phase of cognitive interviews, respondents were asked if they wanted to know more about SUDS and green solutions. Due to a lack of understanding about the concept, respondents thought it would be good to strike a balance between more information and not overdoing it.

"I'm intrigued by this; the grey box has a lot of good facts which they could build on, but at the same time not overwhelm us"

"...potentially a bit more; it is clear but some extra information might make it even clearer"

Two respondents felt more positive towards Thames Water as a result of incorporating green solutions into its DWMP. While the other two thought it was good that the company was including SUDS in the plan, it did not change their perception of Thames Water.

The final two aspects of the plan that were tested with respondents were 'reducing sewer overflows into rivers' and 'reducing property flooding', as shown in Figure A5 and Figure A6 below.

Reduce storm overflows into rivers

What are the targets in the plan for the London area?
Reduce the number of spills from each overflow:

2030: Fewer than 10 spills per year at the most sensitive sites*
2035: Fewer than 10 spills per year at all sensitive sites
2050: Fewer than 10 spills at all sites

What is the current situation?
There are 416 sewer overflows in the region. On average there was 32 spills per overflow in 2021 (approx. 14,700 spills in total).

What would happen by 2050 without the plan?
Population growth and the effects of climate change (more extreme wet weather) would mean much greater numbers of spills from overflows

* "Sensitive sites" include rivers with special designations for wildlife, rare habitats, and/or high use for recreation activities.

- Storm overflows are part of the "design" of the wastewater system from the past and are permitted by the Environment Agency.
- Wastewater is released from overflows (a "spill") when sewers are full to prevent flooding in streets and houses. This usually happens if there is prolonged heavy rainfall.
- The impact on the environment is usually minor because the wastewater is diluted with rainwater and cleared away by the river quickly.
- Sometimes, however, there can be damage to rivers and harm to wildlife. This depends on the amount of wastewater released, what is in the wastewater (e.g. litter) and the flow of the river.

Figure A5: Reducing storm overflows into rivers

Reduce property flooding

What are the targets in the plan for the London area?
Reduce the number of properties at risk of internal and external sewer flooding by:

2030: Maintain current situation for flood risk
2035: Internal: less than 1.5% of properties at risk
External: less than 3% of properties at risk
2050: Internal: maintain less than 1.5% of properties at risk
External: maintain less than 3% of properties at risk

What is the current situation?
Around 70,000 properties in the region (approx. 1% in total) currently face a 1-in-30 risk of flooding from sewers (around a 3.5% chance each year).

What would happen by 2050 without the plan?
By 2050, population growth and climate change could mean that an additional 4,000 properties face a 1-in-30 risk of internal flooding and 11,000 properties a 1-in-30 risk of external flooding.

Internal flooding   External flooding

- Heavy rainfall can cause localised problems in the wastewater system.
- Due to increased population and more wastewater being collected, some sewers are no longer large enough to cope with a lot of rainwater draining into them in a short space of time.
- Where this is a problem wastewater can overflow and cause flooding in basements and ground-level rooms (internal flooding), and flooding in streets and gardens (external flooding).

Figure A6: Reducing property flooding

As part of the survey, respondents were asked which problem they thought was worse between 'overflows from sewers' or 'flooding of people's homes from sewers' – the current performance being provided for each. Four out of the nine respondents said flooding from sewers was worse, offering the following reasons:

- Homes could be flooded more than once with the increased population;

- Homes / property could be damaged;

- It's a hazard to public health;

- It has a negative impact on wildlife;

- It has financial consequences;

- It's wrong that sewer flooding happens in this day and age; and

- I've seen it happen first-hand.

Three said the issues were about the same and two said they didn't know. Where respondents said the issues were equally as bad, they said the following:

- Spills into rivers are worse than very small number of respondents being flooded

- Sewer flooding is less frequent but devasting, but spills are more frequent

All these reasons were captured as open-ended responses in the survey to enable a pre-coded response options to be included in the main survey.

More generally, respondents thought the layout of the plan target descriptions worked well, with the plan information on the left-hand side of the showcard and the context on the right side. There were infrequent mentions of there being too much content and there being a lot to read each time, as well as being 'a bit samey', in terms of presentation. However, respondents also understood that all the information was required to provide informed answers. Indeed, respondents felt that overall, there was 'enough information to understand what Thames Water was trying to get across'.

Ranking the DWMP targets

While respondents said it was easy to rank the planned targets for the various elements of the plan, some found it challenging because of the trade-off element.

"It's difficult to say which is least important as they are all important"

Respondents felt each of the targets being ranked made sense and that there was enough information to rank them sensibly, although one suggested there could be more information on SUDS due to 'the unfamiliarity of it, and that it would be a new concept to a lot of people'. One respondent felt that the specifics of each target action made them easier to rank as this took away from the potential risk of any arbitrary ranking.

The outputs on the target ranking showed that respondents were clearly thinking about them as they were allocating their priorities quite differently. That said, reducing the risk of sewer flooding was regularly in the top two priorities for respondents, regardless of the specific target. For some, the actual target for reducing the risk of sewer flooding was not as important as the principle itself; while 'reduce the number of residential properties at risk of internal sewer flooding in a 1 in 50-year storm by 100% by 2050' was considered more important than 'reduce the number of homes at risk of internal and external sewer flooding by 100% by 2050', it was more about sewer flooding itself rather than the numeric targets. A

number of reasons were provided for choosing sewer flooding as the most important target:

- The health issues associated with sewer flooding;

- That no-one wants their property at risk of sewer flooding;

- The personal risk of sewer flooding;

- The damage to people's goods and cost caused by sewer flooding; and

- The need to fix current problems first, then focus on other things.

Three respondents felt that 'upgrade sewage treatment works to ensure 100% compliance with environmental standards' (protecting the environment) was the most important target to achieve with the following reasons being cited:

- They need the infrastructure in place to accommodate population growth; and

- I don't want damage to the environment.

One respondent said the SUDS target of '*add around 7,000 hectares of sustainable drainage system'* (SUDS) was the most important target to achieve, saying 'it should be adopted by other areas to have quicker impacts on spills'.

All these reasons were captured as open-ended responses in the survey to enable pre-coded response options to be included in the main survey.

Acceptability of the plan

Respondents were told that the overall cost of the plan for improving the wastewater system over the period 2025 to 2050 is estimated to be about £24 billion, and that the cost will be shared across all customers in the Thames Water region. They were also informed of the cost to the average household averaged over 25 years starting from 2025.

In the first phase of cognitive interviewing respondents were shown the DWMP summary depending on their location, vis-à-vis London or the Thames Valley.

Regardless of their location, most respondents said the DWMP plan was 'acceptable' or 'completely acceptable', although respondents did caveat their response on the basis of increased bills. Reasons for finding the DWMP plan acceptable were as follows:

- It's doing all the things it needs to do;

- The improvements are well worth the investment;

- It's not a massive increase in the scheme of things;

- The improvements are necessary / there's a need for more investment;

- The positives outweigh the negatives;

- It's value for money; and

- It's an important thing to do with population growth and climate change.

Some verbatim comments around respondent's acceptability are listed below, with the accompanying cost caveat:

"It's doing all the things it needs to do, but cost will be an issue for some people"

"It's clearly necessary, although a lot of people won't be happy with the bill increase"

"I understand the need for increased investment...water bills are cheaper than energy, but Thames Water makes enormous profits"

"The positives outweigh the benefits, but whether it benefits everyone?"

One respondent felt that the plan was completely unacceptable on the basis that if the benefits are for everyone, there should be a set fee to pay for it. And another couldn't say because he wanted to see additional benefits beyond the super sewer in London.

All these reasons were captured as open-ended responses in the survey to enable pre-coded response options to be included in the main survey.

In the second phase of cognitive interviewing, respondents were presented with two options for showing the DWMP summary. One was based on their location, the other was for the whole of the Thames Water region, as shown in Figure A7 below.

The plan for the wastewater system in the region will…

Invest £24bn between 2025 and 2050 in the entire Thames Water region.

The average customer bill will increase by £118 per year for 25 years starting from 2025.

In the London area, it will:

- **Ensure a resilient wastewater system** by protecting 155,000 properties from the risk of flooding in heavy storms

- **Protect the environment** by upgrading 7 sewage treatment works and by preventing 2,000 sewer spills that could happen in the future due to population growth and climate change

- **Reduce property flooding** by reducing the risk of sewer flooding by 100%

- **Increase green solutions** by managing rainwater falling on over 7,000 hectares of land using sustainable urban drainage (SUDS)

In the entire Thames Water region, it will:

- **Ensure a resilient wastewater system** by protecting 175,000 properties from the risk of flooding in heavy storms

- **Protect the environment** by upgrading 60 sewage treatment works and by preventing 12,000 sewer spills that could happen in the future due to population growth and climate change

- **Reduce property flooding** by reducing the risk of sewer flooding by 100%

- **Increase green solutions** by managing rainwater falling on over 1,000 hectares of land using sustainable urban drainage (SUDS)

Figure A7: DWMP benefits summary (alternative version)

Three of the four respondents preferred to see the plan for the whole of the Thames Water region, saying it was important context to see the plan for the whole of the Thames Water system.

In addition to the high-level summary, some respondents were keen to understand more about the different types of investments, as they felt they would be able to provide more precise answers, although it was also acknowledged that this could result in information overload.

DWMP impact on customer bills

To ensure respondents were fully cognisant of other factors that might affect their responses from a financial perspective, respondents were shown the information in Figure A8.

IMPORTANT NOTE – IMPACT ON CUSTOMER BILLS FOR THE PERIOD 2025 TO 2050

The bill amount shown is only for the actions and investments included in the plan for improving the wastewater system.

- It does not include regular investments to maintain the system, those already underway, and those that may be needed for other water services over the period 2025 – 2050.

- New investments will increase bills, but amounts paid for previous investments will drop out of bills, and innovations can also lead to bill reductions.

- The effect on the overall customer bill – the total amount paid for water and wastewater services – will depend on these other investments too, but it is not possible to indicate today what the overall change will be.

Please also keep in mind that:

- The bill change is shown in "today's prices". This means it does not include an estimate of the effect of inflation, which is the general rise in prices over time. For example, if inflation averages around 2%* between 2025 and 2030, a bill of about £200 per year in 2025 for wastewater services will be about £255 per year by 2030.

- Inflation will also affect your household income (e.g. wages, benefits, state pension) and all other items of household expenditure (e.g. shopping bills, other utility bills, fuel and travel costs, etc.).

* The Office of Budget Responsibility and the Bank of England forecast the inflation rate will return to 2% before 2025.

Figure A8: Other factors affecting customer bills

Respondents were asked to confirm that the bill amount shown was only for the actions and investments included in the plan for improving the wastewater system over the next 25 years, and that it was shown in today's prices, i.e. excluding inflation). All respondents confirmed they understood this to be the case and that the content in Figure A8 was straightforward and easy to understand.

Some respondents said that this was very important information and that it should be more evident. Nonetheless, the content was 'quite comprehensive' and 'gave very important information that respondents want and need to know'.

A2.7 Preference between alternative plans

Having been through what the DWMP involves, what it will deliver, and the benefits it will achieve, respondents were shown three or four alternative plans for investment. The way the information was presented in the two phases of cognitive interviews was different, with Figure A9 displaying what was

shown in the first phase.

	OPTION A	OPTION B	OPTION C
	Go slow ▪ Investment delayed towards the end of the 25-year period. ▪ Lower overall costs and lower customer bill impact. ▪ Benefits not realised until later but the likelihood of achieving the benefits is higher.	**Go faster** ▪ More investment upfront ▪ Higher customer bill impact ▪ Higher overall benefit, but the likelihood of achieving the benefits is lower.	**Go even** ▪ More even investment over 25-year period. ▪ Lower overall costs and lower customer bill impact ▪ Less benefits - maintains the current level of performance and meet regulation targets, but does not provide additional environment benefit.
Flooding in extreme storm events	100% of properties will be protected from sewage flooding in extreme rainfall	100% of properties will be protected from sewage flooding in extreme rainfall	Maintain baseline (2025) level of performance
Protecting the environment	100% compliance at sewage treatment works	100% compliance at sewage treatment works	100% compliance at sewage treatment works
	Less than 10 per spills per overflow <u>by 2045</u>	Less than 10 per spills per overflow <u>before 2045</u>	More than 10 per spills per overflow by 2050
Property flooding	100% of homes will be protected by internal and external sewer flooding	100% of homes will be protected by internal and external sewer flooding	More properties at risk of internal and external flooding
Green solutions	More than 1,000 hectares of SUDS created	More than 1,000 hectares of SUDS created	No target for SUDS creation
Cost *Impact on customer bills (average amount per year for 2025 - 2050)*	£62 per household per year	£109 per household per year	£12 per household per year

Figure A9: **Choice experiment (1st phase)**

All five respondents in the first phase of interviewing chose option A, which is the equivalent of the 'go slow' option in Figure A9 above. The reasons for respondents choosing this option were variations on the same theme like 'getting the same result for half the cost' and 'less cost while still achieving results early' and 'the cost for everyone, especially given the last couple of years'. Apart from the description of the approach, the cost, and the 'by / before 2045' for the number of spills, there was no difference in the attributes. It is not surprising therefore that respondents chose option A.

In the second phase of interviews the options were presented as shown in Figure A10. The plan and the approach are explained in more objective terms than in Figure A9 and three of the five constituent parts of the plan were noticeably different.

Option A – Current proposed plan

The plan: Improve system to cope with population growth and climate change.

Approach: Focus investment for 2025 – 2035 on hotspots that are priorities for reducing pollution and preventing flooding.

Green solutions: Carry out most of the investment in Sustainable Urban Drainage System (SUDS) between 2035 – 2050.
Storm overflows: Minimise impact on most sensitive river locations by 2030, all sensitive sites by 2035 and all sites by 2050.
Property flooding: Carry out most investment to prevent flooding between 2035 – 2050.

Extreme wet weather: No properties at risk of flooding by 2050.

Sewage treatment works: upgrade 50 by 2050 to ensure 100% compliance with environmental standards.
Impact on customer bill: £118 per year for period 2025 – 2030.

Option B – Higher investment

The plan: Improve system faster to cope with population growth and climate change.

Approach: More investment and more upfront compared to Option A, meaning the benefits of protecting the environment and preventing flooding come sooner.

Green solutions: Bring forward investment in Sustainable Urban Drainage System (SUDS) to 2025 – 2040.
Storm overflows: Minimise impact on all sites sooner, starting from 2030.

Property flooding: Carry out more investment to prevent flooding between 2025 – 2040.

Extreme wet weather: No properties at risk of flooding by 2050.

Sewage treatment works: upgrade 50 by 2050 to ensure 100% compliance with environmental standards.
Impact on customer bill: £195 per year for period 2025 – 2030.

Option C – Lower investment

The plan: Maintain 2025 condition of the system over time.

Approach: Minimum extra investment to improve system to cope with population growth and climate change

Green solutions: No plan for increasing use of Sustainable Urban Drainage System (SUDS) in the region.
Storm overflows: No extra investment, meaning no reduction in spills from overflows over period 2025 -2050.
Property flooding: No extra investment meaning around 1% of properties continue to be at risk over period 2025 - 2050.
Extreme wet weather: No extra investment meaning around 10% of properties continue to be at risk over period 2025 – 2050.
Sewage treatment works: upgrade 50 by 2050 to ensure 100% compliance with environmental standards
Impact on customer bill: £34 per year for period 2025 – 2030.

Figure A10: Choice experiment (2nd phase)

Two of the four respondents chose the higher investment, citing the following reasons:

- More protection for the environment and people;

- Higher investment will deliver in terms of population increase;

- It starts sooner;

- The benefits greater;

- It's good value for money;

- It improves the system faster; and

- I like the green solutions

One respondent chose the current proposed plan because it was 'more realistic in terms of cost' and 'less risk than the higher investment option'. The respondent that chose the lower investment option did so because 'it maintains the condition of the current system' and has 'the least impact on the bill'.

Following their preferred choices, respondents were then asked which of the remaining two options they preferred. In the first phase of interviewing, three respondents chose option B ('go faster') because they felt it was 'not feasible to do nothing', and although 'these were long term issues, it was a risk to leave it'. Two respondents chose the 'go even' approach (option C) as this was more predictable.

In the second wave, three out of four chose the current proposed plan as their next most preferred, because 'it's not trying to do anything too quickly' and 'it's delivering what's needed but takes longer'.

All these reasons were captured as open-ended responses in the survey to enable pre-coded response options to be included in the main survey.

In terms of ease of completing the choice task, five said it was 'fairly or very easy; two said it was 'neither easy or difficult', and two said it was 'fairly difficult' because it was hard to decide which option was best.

Follow ups

After choosing their preferred plans, respondents were asked to say how strongly they agreed or disagreed with a series of trade-off statements. There were no issues with understanding this question, and respondents provided a range of answers based on their strength of feeling about each statement.

Two further questions were asked about the Government's expected ambition to introduce a target of zero spills per year by 2050. The first question was whether respondents 'would support a target of zero spills per year if it resulted in a further increase in bills'. In the first phase of interviewing, one said yes, one said no and the other three didn't know. The latter group said there was 'not enough information and that more detail was required to say accurately', another queried 'whether the money is being used effectively', and one was unsure what it meant.

To overcome the lack of detail, the information in Figure A11 was provided for the second cognitive phase.
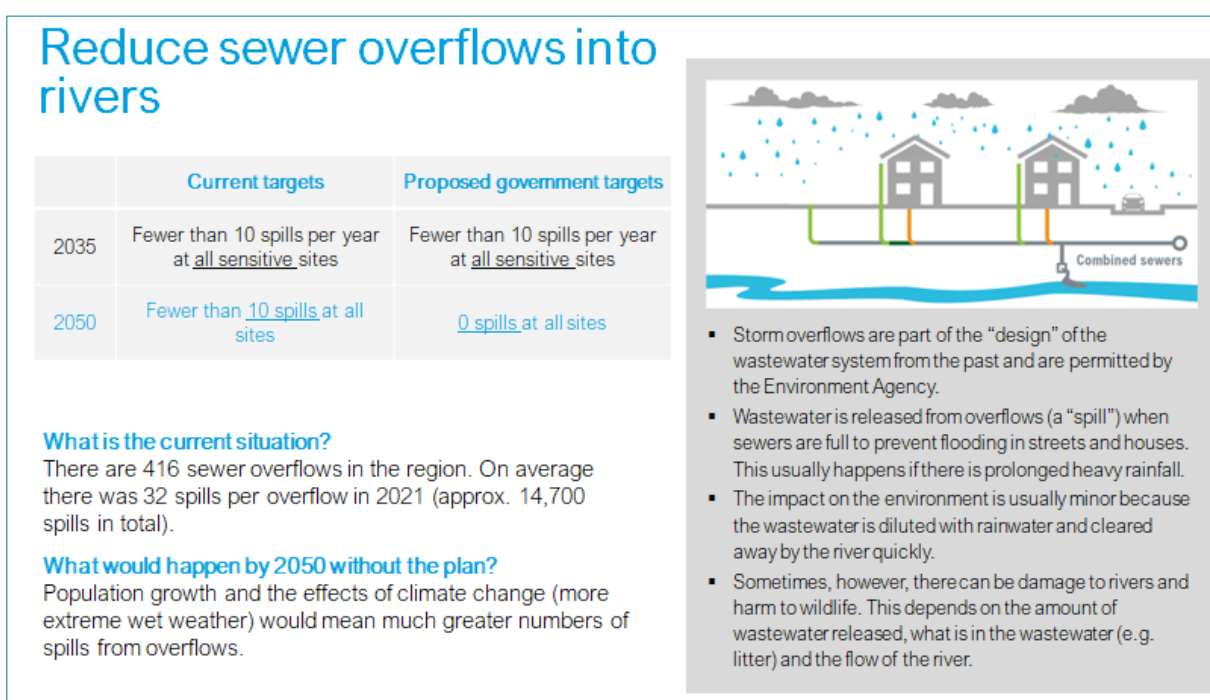
Figure A11: Extra information on reducing storm overflows

This information had the desired effect as no-one chose 'don't know'. Two respondents said 'yes' to supporting a target of zero spills per year if it resulted in a further increase in bills, and two said 'no'. Respondents provided the following reasons for their support:

- As long as it's a reasonable increase, and not too excessive;

- As long as it's spread across all households;

- It depends on how much of an increase;

- If nothing is done, things will get worse;

- It will endanger wildlife and nature; and

- Doing nothing isn't an option.

Those who were against the idea said:

- They need more information about what the plan will look like if it changes;

- Zero spills is unrealistic, they don't believe it's possible; and

- It's directly aimed at customer bills rather than other areas of investment.

The other question relating to zero storm overflows was whether customers would support zero spills per year if it meant that less investment would be made to protect against flooding from sewers. Respondents were mostly against this idea, with six saying no and one saying yes. Reasons for not supporting the target included:

- More properties being at risk of sewer flooding;

- Protection against sewer flooding is more important;

- It's not addressing recognised concerns; and

- It's unacceptable for people's homes to flood.

A2.8 General points

Question structure

One of the issues to emerge from the first round of cognitive interviews was the abruptness with which the main part of survey commenced following the introductory customer profiling data. Respondents felt that there should be more of a lead in to the DWMP section rather than moving straight into it.

To overcome this, three customer experience questions were moved from the follow-up section at the end of the questionnaire to just before the DWMP introduction. This had the desired effect of warming respondents up and getting them used to thinking about water-related issues.

Survey credibility

There was unanimity thatthe survey in general, the plan support, and the preference questions specifically, were credible. This was due to the clarity of questions and the background information that was provided. One respondent thought that the credibility could be enhanced by adding where the money would be spent.

Survey length

Although a couple of respondents thought the survey was too long, most said it was fine, and suggested that it needed it to be that long because of the issues it was covering.

"It's got to cover certain aspects and has to go into enough detail; if there's not enough detail, people will complain"

"It's as long as it needs to be, you can't skimp on the details"

"It's more or less right; it's quite long but it's not something that can be done quickly. If you're doing it properly, it has to be quite long"

One respondent said that when it comes to completing the survey online, it would be much easier.

For the couple of respondents who thought it was a bit long, they suggested cutting down on the amount of reading but as one person acknowledged,

"…the amount of information is about right, too much and people won't read it"

A2.9 Summary

Overall, the respondents understood what was being asked of them and were able to demonstrate a good level of comprehension of the constituent parts of the DWMP. Learnings from the testing process resulted in relatively minor changes to the text and how the information was displayed ahead of the pilot survey phase.

Appendix 3 : Household survey

PDF

Appendix 3 -
Household Survey.pdf

Appendix 4 : Non-household survey

PDF

Appendix 4 -
Non-Household surve

Appendix 5 : Onscreen layout

F7698F39.zip

Appendix 6 : Summary statistics

Appendix 6 -
Summary Statistics.xls

Navigating our DWMP

We've developed a comprehensive document suite to share our final DWMP. This includes five summary documents that contain increasing levels of detail. To help you to navigate around our document suite and to find key DWMP content, we provide a Navigation index below and on our DWMP webpage. The orange cells refer to where key DWMP content can be found across our final document suite.

Navigation index		Protecting the environment and providing a reliable, sustainable wastewater service							Best value and delivery					Working together		DWMP stages and data				
		Storm overflows	Sewer flooding	Level of ambition & pace of delivery	Growth & climate change	Resilience: flooding & power	Groundwater	Environmental assessments	Affordability & bill impact	Best Value	Base vs Enhancement	Solutions & deliverability	Programme alignment	Partnership working	Stakeholder & customer engagement	DWMP stages & process	Level 2 regional summaries	Level 3 regional summaries	Data tables	Risk & Assurance
Summary documents	Customer summary	■	■											■	■	■				
	Non-technical summary	■	■											■	■	■				
	Technical summary	■	■											■	■	■				
	The Plan	■	■											■	■	■				
	Catchment Strategic Plans x13	■	■											■	■		■	■		
Technical appendices x11	Appendix A - Strategic context												■	■		■				
	Appendix B - Risk-Based catchment screening															■				
	Appendix C - Baseline risk and Vulnerability assessment			■	■															
	Appendix D - Options development and appraisal	■		■	■						■	■								
	Appendix E - Programme appraisal								■			■	■							
	Appendix F - Stakeholder engagement														■					
	Appendix G - Adaptive pathway planning	■	■		■															
	Appendix H – Customer engagement Part A – Draft DWMP														■	■				
	Appendix I - Risk and uncertainty											■	■							
	Appendix J - DWMP and WRMP alignment												■							
	Appendix M - Assurance																			■
New technical appendices x9	Appendix N - You Said, We Did (YSWD)	■	■						■			■		■	■					
	Appendix O - What base buys										■									
	Appendix P - Response to July 2021 Floods		■		■	■			■											
	Appendix Q - Storm overflows	■										■								
	Appendix R - Delivery of SuDS and nature-based solutions	■							■			■								
	Appendix S - Partnership opportunities and working													■	■					
	Appendix T - Groundwater quality						■													
	Appendix U - Resilience	■	■		■	■								■	■					
	Appendix V – Customer engagement Part B – Consultation Survey Report														■					
Environmental assessments	Appendix K - Strategic environmental assessment (SEA)							■												
	Appendix L - Habitats regulations assessment (HRA)							■												
Portals and data	Customer portal	■	■						■			■		■	■	■	■	■		
	Practitioner portal	■	■													■	■	■		
	Data tables			■								■							■	
	Data tables commentary																		■	

We welcome your views on our DWMP. Please share them with us by emailing: DWMP@thameswater.co.uk.

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