# Thames Water

# Draft Water Resources Management Plan 2019

# Statement of Response

**Main Report**

# Table of contents

# Figures



# Tables

# Glossary

| Term | Description |
|---|---|
| Abstraction | The removal of water from the ground or rivers. Abstractions are licensed by the Environment Agency. |
| Business Plan | Business Plans are produced by water companies every 5 years. They set out their investment programme to ensure delivery of water and wastewater services to customers. These plans are drawn up through consultation with the regulators, stakeholders and customers and submitted to Ofwat for detailed scrutiny and review. |
| Customer Challenge Group (CCG) | An independent body that challenges both our current performance and our engagement with customers on building our future plans. |
| Department for Environment, Food and Rural Affairs (Defra) | UK government department responsible for safeguarding the natural environment, food and farming industry, and the rural economy. |
| Demand management | The implementation of policies or measures which aim to control or influence the consumption or waste of water (this definition can be applied at any point along the chain of supply). |
| Deployable Output (DO) | A measure of the available water resource during a drought year for a given level of service. |
| Economics of Balancing Supply and Demand (EBSD) | A method to assess the balance between a company's available water resource and the demand for water by customers. Any imbalance between supply and demand can be met either by demand management strategies, such as selective metering and leakage control, or by the provision of additional water resources. |
| Environment Agency (EA) | UK government agency whose principal aim is to protect and enhance the environment in England and Wales. |
| Group Against Reservoir Development (GARD) | A community organisation set up to oppose the development of a new reservoir near Abingdon. |
| Habitats Regulation Assessment (HRA) | Regulations to protect Natura 2000 sites (Special Areas of Conservation and Special Protection Areas) and Ramsar sites (wetland sites of international importance). |
| Historic England | A non-departmental public body of the government whose aim is to protect the historical environment of England by preserving and listing historic buildings, ancient monuments. |
| Innovative groundwater options | Innovative groundwater options include artificial recharge and aquifer storage and recovery schemes. These involve pumping water resources underground for use in dry periods. The approach is not widely used in the UK. |
| Interactive River and Aquifer Simulation (IRAS) | IRAS is a water resource simulation tool, based on water balance accounting principles that can test alternative sets of conditions of both supply and demand. |
| Leakage | Loss of water from water mains (including trunk mains, distribution mains and communication pipes), and customer pipes. |

| Term | Description |
|---|---|
| Leakage reduction | Controlling the loss of treated water through leaks in the distribution pipework, either by active leakage control or by replacing whole sections of pipe (mains replacement). |
| MaRIUS | Managing the Risks, Impacts and Uncertainties of drought and water scarcity. A NERC funded research project, to examine how best to manage future droughts by introducing a risk based approach to drought and water scarcity. |
| Natural capital accounting | The process of calculating the total stocks and flows of natural resources in a given system, either in terms of monetary value or in physical terms. |
| Natural England | A non-departmental public sponsored by the Department for Environment, Food and Rural Affairs to protect the natural environment in England, helping to protect England's nature and landscapes. |
| Net gain | The overall improvement which is observed in a form of measurement, after all positive and negative influences have been fully accounted for. |
| Non-governmental organisation (NGO) | An organisation that operates independently of any government, typically one whose purpose is to address a social or political issue. |
| Ofwat | The regulatory body responsible for economic regulation of the privatised water and wastewater industry in England and Wales. |
| Per Capita Consumption (PCC) | The amount of water used per person per day. It is usually presented as litres/head/day (l/h/d). |
| Price Review | The process by which Ofwat set the price, investment and service package that customers receive. |
| Reuse | The use of treated wastewater as a source of potable supply. |
| Statement of Response (SoR) | A document produced in response to the public consultation on the draft WRMP. The document outlines the comments received to the public consultation and revisions to the draft WRMP as a result of these representations. |
| Strategic Environmental Assessment (SEA) | A systematic decision support process to ensure that environmental and other sustainability aspects are considered effectively in policy, plan and programme making. |
| Water transfer | The movement of water from one place to another through a variety of methods. These may include water pipes and aqueducts. |
| Water Available for Use (WAFU) | Deployable output – less any sustainability reductions – plus any bulk supply imports – less any bulk supply exports – less any reductions made for outage allowance. |
| Water Framework Directive (WFD) | EU legislation that requires all member states (including the UK) to take certain steps to protect and improve the quality and quantity of water within water bodies such as lakes and rivers. |
| Water Industry National Environmental Programme (WINEP) | Environmental improvement schemes that ensure that water companies meet European and national targets related to water. Developed and enforced by the EA. |
| Water Resources Management Plan (WRMP) | A plan which sets out how a water company intends to provide a secure and sustainable supply of water to customers over at least a 25 year period. |

| Term | Description |
|---|---|
| Water Resources South East (WRSE) Group | A group of water companies and regulators working together to determine potential programmes of water resource options and water sharing opportunities in the South East of England. |

# Statement of Response – Main Report

## A. Executive summary

### *Introduction*

1. Water is essential for everything we do at home and at work. It is also essential for a healthy environment and a prosperous economy. We provide a reliable supply of safe drinking water to around 10 million household customers and 215,000 businesses in London and across the Thames Valley.

2. Many people think that there is plenty of water in the UK but the South East of England is one of its driest regions and London gets less rain than Rome, Dallas and even Sydney. The region is classified as an "*area of serious water stress*" by the Environment Agency.

3. Our water resources will come under further pressure in the future due to a growing population, the effects of climate change on our weather patterns and the need to protect the environment. We need to develop plans now to ensure we can continue to provide a resilient and sustainable water supply in the long-term.

4. Every five years we are required to produce a Water Resources Management Plan (WRMP)[1], this is a strategic plan which sets out how we intend to maintain the balance between supply and demand for water for our customers for at least the next 25 years. Government and regulators provide guidance[2,3] which provides a framework for the development of the WRMP.

5. We developed our draft Water Resources Management Plan 2019, hereafter referred to as our draft plan, over an 80 year planning period, from 2020 to 2100. We have taken a long term perspective in recognition of the scale and complexity of the water resources challenge that we face. We have designed our draft plan to satisfy three main objectives:

    - to provide a secure supply of water for our customers;
    - to improve the resilience of the water supply to cope in a severe drought; and
    - to look beyond the needs and opportunities of our supply area alone and take into account the growing needs of the wider South East of England.

6. We engaged with regulators, stakeholders and customers throughout the development of our draft plan.

7. We published our draft plan for public consultation on 9 February 2018. The consultation closed on 29 April 2018. We encouraged stakeholders and customers to give their views on our draft plan through a variety of channels, including public meetings, an online survey, and

[1] Water Industry Act 1991, Sections 37A to 37D (as amended by the Water Act 2003)
[2] Environment Agency and Natural Resources Wales, Water Resources Planning Guideline: Interim Update July 2018
[3] Defra, Guiding principles for water resources planning for water companies operating wholly or mainly in England, May 2016

written submissions. We received over 540 representations. We would like to thank everyone who took the time to provide feedback.

8. We also sought feedback from our customers via our online panel, interactive tool and bespoke research sessions to ensure we understood the views of our customers.

9. We have reviewed all the feedback received as part of the public consultation and have published this report, the Statement of Response, setting out our consideration of the representations and changes that we have made to the draft plan as a result of the representations, and new information.

## *Feedback from the public consultation*

10. We received representations from a wide range of stakeholders including regional and local government, parish councils, members of parliament, environmental organisations, local community organisations, campaign organisations, trade bodies and individuals.

11. The issues raised in the representations covered a wide range of topics. A summary of the main issues is presented in Table 1.

**Table 1: Overview of the main points raised in representations**

| Topic | Summary of the main points |
|---|---|
| **Population and property forecasts** | There were a number of comments on the population and property forecasts. A number of local authorities queried whether updated projections had been taken into account in the forecasts. Other representations challenged that the forecasts were inflated. |
| **Protection of chalk streams** | A large number of stakeholders expressed concern about the impacts of existing abstraction on watercourses and chalk streams. They did not consider that the draft plan reflected the aspiration to protect vulnerable chalk streams - that it did not go far enough, did not move fast enough, and was not clear enough about what steps would be taken. |
| **Demand management** | There was strong support for demand management, with some stakeholders calling for more ambition. The proposed reduction in average Per Capita Consumption (PCC) was challenged by some stakeholders who called for more stretching targets. There was a request for further information on the plans to deliver and monitor the implementation of the metering programme to provide confidence in delivery. |
| **Leakage reduction** | Many stakeholders questioned if the leakage reduction target was sufficiently ambitious, whilst others raised concerns about over-reliance on leakage reduction, and the risks around non-delivery of these targets for customers and the environment. There were requests for further information on how the leakage target will be achieved. In addition, a number of consultees requested information on the company's longer term ambition for reductions in leakage. |
| **Teddington Direct River Abstraction** | There was significant opposition to this scheme from a number of stakeholders; their main concern was the impact on river ecology. The potential environmental issues were considered to be particularly concerning because they raised question marks about the feasibility of an important and early element of the draft plan. The Environment |

| Topic | Summary of the main points |
|---|---|
| | Agency (EA) set out a list of recommendations and further work required to ensure legal compliance and to ensure that the scheme does not cause an unacceptable impact on the environment. Opponents of the proposed new reservoir near Abingdon were the strongest supporters of the scheme. |
| **Severn Thames Transfer** | There were a number of comments on water transfers, both positive and negative. A large number of responses were received from supporters of the Cotswold Canals challenging Thames Water's preference for a pipeline rather than the restored canals as a conveyance route. Ofwat and the EA set out their expectation that further work should be undertaken on the Severn-Thames Transfer. |
| **South East Strategic reservoir option** | There was both strong support and strong local opposition for a new reservoir. Supporters focused on the benefits that the reservoir could provide in helping to protect the environment, particularly chalk streams, provide increased resilience to drought and flooding, and recreational benefits. The engagement and research with customers through the online community and research groups highlighted their preference for a reservoir. However there was also local opposition with concerns raised about the impacts on the local environment and local community. |
| **Environmental assessment** | There were a number of comments on the environmental assessments. These included specific comments on aspects of the Strategic Environmental Assessment (SEA), the Habitats Regulation Assessment (HRA) and the Water Framework Directive (WFD) assessment, specifically the need to ensure current operations and future options do not cause deterioration to the environment. There were also calls to show how the proposals could support the government's objective to provide net environmental gain. |
| **Planning at a regional level** | Overall stakeholders supported the work of Water Resources in the South East Group and the objective to co-ordinate water resource planning at a regional level. Ofwat expressed disappointment that the draft plans in the South East appeared to miss the opportunity to secure the long term resilience of the region and asked Thames Water, and the other water companies, to work together to address challenges in the South East. |
| **Programme development** | There were a number of comments around the accessibility and transparency of the decision making process adopted for plan development including the contributions of the Expert Panel and the metrics used in the decision making process. There were also comments on the scenario analysis, in terms of the range of scenarios tested and the outcomes of this work. |

12. We have carefully considered all the representations. We have responded to all the comments raised in the representations. We have revised our draft plan in response to the feedback we received, and also new information.

## *Our revised draft plan*

13. The major changes to the input data to our draft plan are as follows:

- We have revised the population forecasts from 2045 using the latest information from the Office for National Statistics (ONS) 2016 national forecasts
- We have included ambitious targets to reduce leakage, by 15% (~100 Ml/d) by 2025 and to halve leakage by 2050
- We have removed the Teddington Direct River Abstraction scheme in response to concerns raised by the Environment Agency.

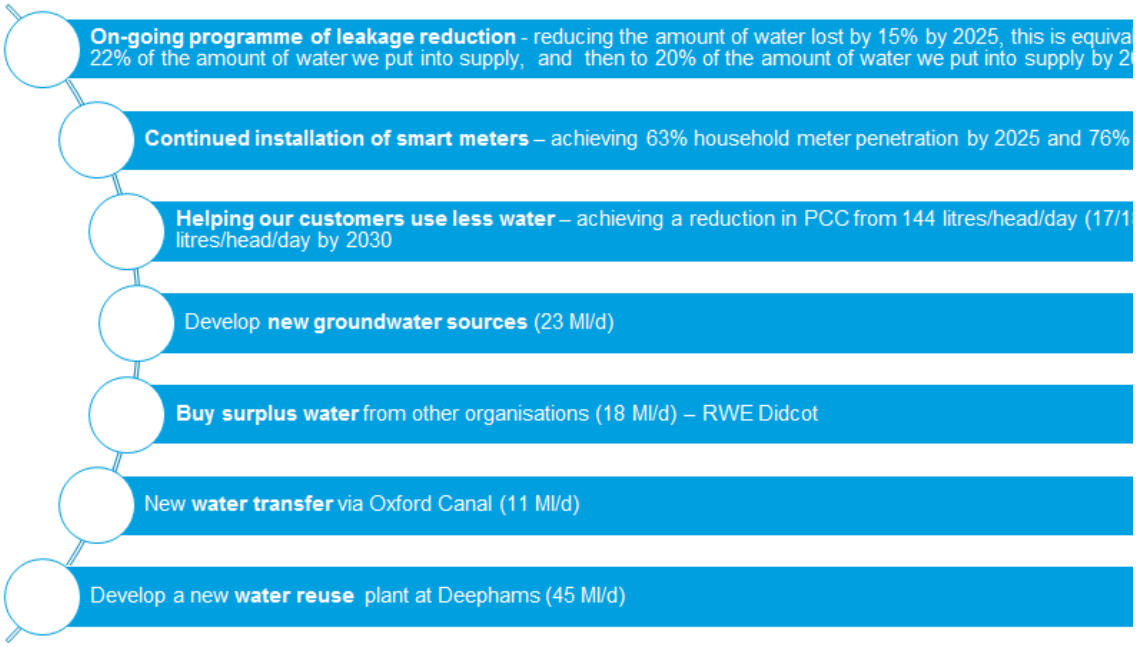
14. There have also been a number of other changes to the draft plan in response to feedback and new information.

15. Taking account of these changes, we have rerun the programme appraisal process for plan development and proposed a revised preferred programme. The revised draft plan from 2020 to 2030 and then from 2030 to 2100 is presented below.

## *Our proposals to 2030*

16. In the next 10 years, from 2020 to 2030, our revised draft plan focuses on making the most effective use of the water resources that we have available, with ambitious targets to reduce the amount of water that is lost from our water pipes and supporting our customers to use water efficiently through smart metering and innovative engagement. It sets out our ambition to reduce leakage by 15% by 2025, which is approximately 100 Ml/d. We will continue to focus on reducing leakage beyond 2025 and by 2030 leakage will account for about 20% of the amount of water out into supply. Whilst there is wide support to reduce leakage and manage demand, there is recognition of the risk of over-reliance on these measures. We consider that the prudent approach is to develop new resources in combination with measures to manage demand to ensure we can provide a secure water supply and environmental resilience. We have proposed the development of new groundwater sources combined with an extension to the existing commercial agreement with RWE Npower, a new water trade via the Oxford Canal and the preparations for a water reuse scheme at Deephams, Edmonton, North East London. Our revised programme up to 2030 is presented in Figure 1.

**Figure 1: Our revised proposals from 2020 to 2030**




17. This programme will ensure enhanced resilience to severe drought from 2030 which is supported by government, stakeholders and our customers.

## *Our proposals beyond 2030*

18. In the longer term we will continue to manage demand for water and have set a target to reduce leakage by 50% by 2050; this is equivalent of 16% of the amount of water we put into supply. This addresses comments raised during the consultation and aligns with the recommendations of the National Infrastructure Commission[4]. We will also need more water. We are continuing to work with neighbouring water companies to understand the future water resource needs across the region and to ensure that our plans are co-ordinated to give an efficient and effective regional plan. Affinity Water has confirmed its need for an additional 100 Ml/d of raw water in 2037 from a strategic resource and whilst Southern Water have not confirmed a need for more water, they have asked us to consider if we could provide water in the future should it be needed.

19. We completed detailed work to examine different strategic resource options, this work has concluded that a new reservoir is the most cost effective strategic resource, as well as providing resilience to drought and opportunities for benefits to the local community and the environment. The reservoir could, with additional network connections, provide the water needed to reduce abstractions from vulnerable chalk streams and watercourses – putting natural capital into practice. Furthermore it is the option that is most preferred by our customers. The reservoir would be jointly promoted by Thames Water and Affinity Water and

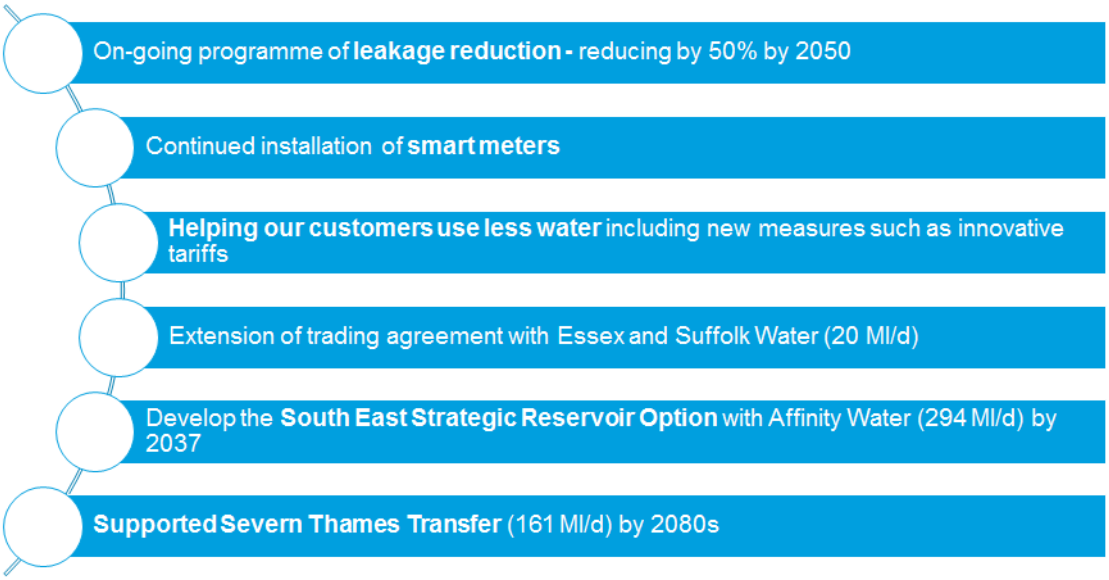
[4] National Infrastructure Commission, Preparing for a drier future: England's water infrastructure needs, April 2018

provide a storage and transfer hub for the wider South East region. The reservoir would need to be operational from 2037, this is ahead of the timing proposed in our draft plan where the reservoir was planned to be operational from 2043.

20. There has been much focus on building a regional or national network and using this to transfer water. We have already completed an extensive programme of work and engagement with interested stakeholders and regulators in regard to the Severn Thames Transfer scheme and have considered possible transfers of water from Wales, the Midlands and North West. We have included water transfers via the River Severn in our revised draft plan from the 2080s and committed to continue to work with other water companies and regulators in the next 5 years to fully understand the viability of a large water transfer.

21. Our revised draft plan from 2030 to 2100 is presented in Figure 2.

**Figure 2: Our revised draft proposals from 2030 to 2100**




## *Further work*

22. We will continue work to address the concerns raised by the Environment Agency and the Port of London Authority in relation to the Teddington Direct River Abstraction scheme.

23. We will continue work to examine transfers via the River Severn. There are a number of aspects to this work including (1) understanding the magnitude of water losses that could occur during transfer, (2) the environmental and water quality issues associated with the water transfer and (3) the changes that would be required to the regulation of the River Severn. We have recently completed customer research in collaboration with United Utilities and Severn Trent Water to examine customer views on trades/transfers to ensure concerns can be fully addressed if a transfer is promoted.

24. We will continue to engage with regulators and stakeholders as we progress further work.

# B. Introduction

25. Water is essential for everything we do at home and at work. It is also essential for a healthy environment and a prosperous economy. We provide a reliable supply of safe drinking water to around 10 million household customers and 215,000 businesses in London and across the Thames Valley.

26. Many people think that there is plenty of water in the UK but the South East of England is one of its driest regions and is classified by the Environment Agency as "seriously water stressed". Pressure on our water resources is already significant and in the future this pressure will increase with a growing population and less water available due to a changing climate and the need to protect the environment. We need to plan ahead to ensure we have a secure and sustainable water supply in the future.

## *Water resources planning*

27. Water companies are required[5] to produce a Water Resources Management Plan (WRMP) every 5 years which sets out how the company plans to maintain the balance between supply and demand for water for a minimum planning period of 25 years, although companies with particularly complex planning problems are encouraged to take a longer term view[4]. Government and regulators publish reference documents namely, the Guiding Principles[6] and Water Resources Planning Guideline (WRPG)[7], which provide a framework to guide water companies in the preparation of WRMPs.

28. We have developed our draft plan over an 80 year planning period, from 2020 to 2100, recognising the scale and complexity of the water resources challenge ahead and to ensure we can provide our customers with the best value over the long term. We have designed our plan to satisfy three main objectives:

- to provide a secure supply of water for our customers addressing the supply demand deficits that we forecast in our region;
- to improve resilience to a severe 1 in 200 year drought; and
- to look beyond the needs and opportunities of our supply area alone and take into account the growing needs of the wider south east of England.

29. We recognise there is wide interest in water resources and over the past 4 years we have worked extensively with regulators and stakeholders as we developed our draft plan to give them the opportunity to understand and challenge our approach and decisions, and to input to the preparation of the draft plan. We have published the minutes from meetings in addition to presentations, papers and technical reports on a range of matters related to the plan. Further information is presented in Appendix S: Stakeholder Engagement of the revised draft plan.

30. We also engaged with our customers as we developed our draft plan to ensure we understood their views and to make sure we reflected what they want now, and in the future.

[5] Water Industry Act 1991, Sections 37A to 37D (as amended by the Water Act 2003)
[6] Defra, Guiding principles for water resources planning for water companies operating wholly or mainly in England, May 2016
[7] July 2018, Water Resources Planning Guideline: Interim Update.

This is presented in Appendix T: Our customer priorities and preferences of the revised draft plan.

31. We are required to consult on our draft plan[8]. We published our draft plan for public consultation on 9 February 2018. We promoted the consultation through a variety of channels to encourage stakeholders and customers to provide their feedback. The consultation closed on 29 April 2018. We received over 540 responses to the consultation, as well as feedback from customers via our online panel, interactive tool and bespoke research sessions.

32. We have prepared this report, the Statement of Response, to respond to the comments received as part of the public consultation.

## *Purpose of this report*

33. The purpose of this report, the Statement of Response, is to set out the comments received in response to the consultation, explain the consideration we have given to the points made, and how these have been taken into account, alongside new information in revising the draft plan.

34. We published this report in October 2018. We had originally intended to publish the report on 10 August 2018 however it was recognised that it was important to coordinate with the other water companies in the South East, and nationally, to ensure alignment hence we agreed the later publication date with Defra[9].

35. The Statement of Response has been prepared in line with the WRPG and includes:

- an explanation of the consideration that we have given to the representations received as part of the public consultation;
- an outline of changes made to the draft plan, and the reasons for the changes; and
- a description of other relevant changes that have occurred during the consultation period and how these have affected parts, or the whole, of the draft plan.

36. We have sent a copy of this report to the Secretary of State for Environment, Food and Rural Affairs, to everyone who participated in the consultation, and published it on our website www.thameswater.co.uk/wrmp.

37. The structure of this document is as follows:

- Section A: Executive Summary
- Section B: Introduction (this section)
- Section C: Overview of the public consultation
- Section 0: Feedback from customers
- Section E: Main issues raised in the public consultation
- Section F: Our revised draft plan
- Section G: Next steps

[8] July 2018, Water Resources Planning Guideline: Interim Update
[9] Letter from Defra to TW, 31 July 2018

38. Annexes 1 to 3 provide the list of consultees, the email inviting participation in the consultation and the consultation questions respectively.

39. We have also published schedules of responses (Appendices A – G). The structure of the schedules is as follows:

- main points raised by the consultee, where a representation covers more than one technical point, the individual points have been separated to aid clarity;
- our consideration of the points raised;
- explanation of how the draft plan has changed as a result of the comments; and
- if the draft plan has not changed, an explanation of why not.

40. Representations submitted by an organisation have been attributed to that organisation. Representations submitted by individuals have been given anonymity with a unique ID number.

41. The list of Appendices A to G is as follows:

- Appendix A - Response to EA and Natural Resources Wales (NRW) representations
- Appendix B - Response to Ofwat's representation
- Appendix C - Response to Natural England's representation
- Appendix D - Response to Historic England's representation
- Appendix E - Response to Customer Challenge Group's representation
- Appendix F - Response to representations from stakeholder organisations
- Appendix G - Response to representations from individuals

These are published as separate documents.

42. We have also published, as separate documents, information on specific topics to provide further clarification or to explain how important information has been included in the revised draft plan, where these do not readily sit within the previous appendices as follows:

- Appendix H - Severn Thames Transfer – Conveyance by Cotswold Canals
- Appendix I – Note on the cost assessment of options
- Appendix J - Severn Thames Transfer – Further work
- Appendix K – Teddington Direct River Abstraction – Common Understanding

43. We have endeavoured to address all the main points raised by consultees in their representations where they are related to the draft plan.

44. We have also revised the draft plan and will publish it once we receive approval to publish from Defra.

# C. Overview of the public consultation

45. We undertook the statutory public consultation on our draft plan from 9 February to 29 April 2018 to seek feedback from customers, stakeholders, regulators and interested parties on our proposals.

46. As part of that exercise, we published our draft plan on our website www.thameswater.co.uk/yourwaterfuture along with details about the public consultation and how to participate.

47. Consultees were able to make representations on the draft plan via a range of channels:

- Online – Respondents could submit an online response via a Citizen Space hosted website, hyperlinked from the consultation website www.thameswater.co.uk/yourwaterfuture. This was an open access survey.
- Email or post – Respondents to consultation could submit a representation by email or post. Some submitted responses to Defra, others to Thames Water directly. These responses were freeform responses.
- Paper feedback form – Respondents could fill in a hard copy feedback form (which had the same questions as the online survey). A pre-paid envelope was provided with the feedback form.
- In person – at drop-ins, local discussion forums and shopping centres which were held through February, March and April 2018.

48. An independent research agency, Community Research, which specialises in public consultation, assisted in designing the consultation questions to ensure we adhered to good consultation practice. This involved making sure the questions were clear and unambiguous, ensuring customers had sufficient information in order to provide an informed response, that the questions were neutrally worded and balanced, and that we included a number of open and closed questions to allow respondents to provide full answers and in their own words. All questions were optional, meaning that respondents could provide a response to a question on a particular topic without having to provide a view on any others. The consultation questions are provided in Annex 3. Community Research also worked with us to ensure the approach we adopted to the public consultation, the materials published, and the analysis undertaken were robust and fair; and they have published a separate report[10] on the consultation exercise.

49. In preparing for the consultation, and throughout the consultation period, we engaged with our Customer Challenge Group, an independent body whose members include regulators, representatives from business, local government and organisations including the Consumer Council for Water, whose role is to ensure the views of our customers are properly considered and reflected in our future plans.

[10] Report on Thames Water's public consultation on the draft WRMP19, Community Research, August 2018 is available on www.thameswater.co.uk/wrmp

## *Documentation*

50. We produced a suite of documentation to ensure relevant draft plan information was accessible to all interested individuals and organisations, as follows:

- Overview of the draft plan - A high level summary setting out the challenges, the approach we followed in developing the plan, and the preferred programme, and the reasons for this. It included specific consultation questions on sections of the draft plan. The front cover and an illustration from this document is shown in Figure 3.
- A technical executive summary – a detailed summary of the plan with signposts to relevant sections of the detailed technical documentation
- The full technical report which comprised 11 sections and 26 appendices
- Technical reports including Methodology Reports and Option Feasibility Reports

**Figure 3: Front cover and illustration from the Overview document**


51. We published the documentation on our website www.thameswater.co.uk/yourwaterfuture and we made paper copies available to view throughout the consultation period, by appointment, at our offices in Reading. We also made available to view at our offices copies of supporting technical documents that we could not publish on our website due to national security restrictions.

## *Promotion and engagement*

52. Stakeholders, customers and interested parties were encouraged to give their views on the draft plan through a variety of channels, including public meetings, an online survey and written submissions. We coordinated all promotion and engagement on the draft plan with that relating to our Business Plan to enable a clear understanding by customers, stakeholders and interested parties of their relationship.

***Pre-launch meeting***

53. We held a meeting on 5 February 2018 in London, ahead of the start of the public consultation, to present an outline of the draft plan and to raise awareness of the up-coming public consultation and encourage feedback. The meeting was attended by over 50 organisations.

***Launch of the consultation***

54. On 9 February 2018 we sent an email to over 1,000 stakeholders and interested parties, including all statutory consultees, third party organisations, retailers, developers and stakeholder organisations who had participated in our water resources stakeholder fora and stakeholders who had participated in the public consultations on our previous Water Resources Management Plan (WRMP14) to advise them of the start of the public consultation on the draft plan. We provided a web link, details of how to participate in the public consultation and an electronic copy of the Overview of the draft plan. Annex 1 is a list of all stakeholder organisations to whom the email was sent and Annex 2 provides the email.

***Public meetings***

55. We held 8 Local Engagement Forums during the consultation period in Abingdon, Beckton, Beddington, Bicester, Bracknell, Cirencester, Richmond and Stevenage. The Forums were evening events which gave local communities and customers an opportunity to hear about our future plans and raise points that they wanted taken into consideration. Presentations on national, regional and local issues were made, followed by a Q&A session.

**Figure 4: Promotion of the Local Engagement Forum in Abingdon**


56. We held 2 Drop-in events in Oxford and Steventon. Over 100 people attended. Technical experts from Thames Water, including planning consultants, engineers and water resources specialists attended the events to ensure we could address questions and concerns as fully as possible at the time. There were a number of points raised at these events including objections to the need for a reservoir, the siting of the reservoir, concerns about local flood management, the construction phase and the opportunities the reservoir could afford to the local community. Posters advertising the events are presented in Figure 5.

**Figure 5: Promotion of drop-in events in Oxford and Steventon**


57. We gave a presentation to the Abingdon Town Council meeting on 25 April 2018 to brief members on the WRMP19 and the proposal for a reservoir near Abingdon.

***Stakeholder engagement***

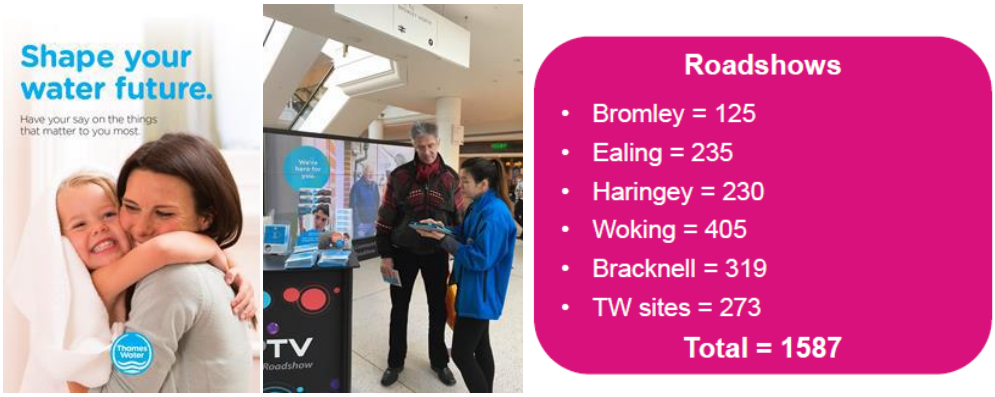
58. We hosted a stakeholder meeting on the 21 March 2018 to provide an overview of developments and ongoing work since publication of our draft plan for consultation. We also provided an opportunity for discussion on aspects of the draft plan with our technical team, either individually or in groups to help stakeholders to understand our draft plan and aid them in formulating their feedback.

59. We held discussions with a number of organisations including Historic England, Natural England, the Environment Agency and other water companies to understand issues and concerns on our draft plan.

***Customer engagement***

60. We promoted the consultation through information in water bill inserts, in corporate materials such as “Welcome to your smart meter” packs, and at roadshows held in shopping centres. We engaged with over 1,500 people through these roadshows (Figure 6).

**Figure 6: Information on the roadshows**



61. We also engaged our online community who completed a version of the online survey. We held customer workshops in 4 locations with 75 participants, and received feedback via the interactive engagement tool “Shape your water future”.

***Employee engagement***

62. We promoted the draft Business Plan and draft WRMP, and respective consultations, to our employees through internal briefings, the internal magazine, and roadshows via our intranet and sought their feedback, and also that of their family and friends (Figure 7).

**Figure 7: Roadshow to engage with employees**


***Media and digital promotion***

63. We engaged with our customers through a variety of digital channels including social media – Facebook & Twitter (paid and owned channels), and Digital Display – targeted adverts to ensure maximum marketing reach. Examples of digital adverts are provided in Figure 8.

**Figure 8: Examples of digital adverts**

## *Summary of responses*

64. In total we received 541 responses to the public consultation. The total number of submissions received online and via a feedback form, letter or email, is shown in Table 2.

**Table 2: Number of responses received to the public consultation and channel for response**

| Channel | Number of responses |
|---|---|
| Email or post | 440 (82 written and 359 email) |
| Online | 93 |
| Feedback form | 8 |

65. Table 3 shows the breakdown of respondents who submitted a response either by letter or email to the consultation by sector.

**Table 3: Total submissions from participants by sector**

| Written or email response by stakeholder type | Number of responses |
|---|---|
| Individual | 353 |
| Charity/campaign organisation | 36 |
| Local authority | 22 |
| Industry/landowner | 8 |
| Regulator | 7 |
| MP | 4 |
| Water company | 4 |
| Other | 3 |
| Not stated | 3 |
| **Total** | **440** |

66. Table 4 shows the number of responses from customer research and engagement.

**Table 4: Responses via customer research**

| Channel | Number of responses |
|---|---|
| 4 workshops in Abingdon, Lechlade, Twickenham and East London | 75 |
| Online research community | 174 |
| Engagement tool responses | 2,652 |

## *Analysis of responses*

67. As outlined above, we have received feedback from a number of channels. It was not appropriate to analyse all the feedback in the same way.

68. Feedback to the open access consultation, i.e. in writing or via the online survey, was self-selecting and these responses have been analysed together.

69. All email and written freeform responses to the consultation were systematically logged and coded using an agreed code frame, which corresponded to the sections in the draft plan technical report.

70. Responses to the online survey and via the feedback form were also coded, using a code frame developed for each question and based on the responses received. In terms of the survey responses, it should be noted that not all respondents answered every question and not all responses related to the question asked. Some responses related to other consultation questions and some to issues not explicitly raised in the consultation.

71. Section E provides an overview of the main issues raised and the appendices A-G provide detailed responses to the points raised by organisations or individuals.

72. Feedback from the customer online community and through the focus groups has been analysed separately. This was important in order to ensure that the views of those who were self-selecting were presented separately to those who participated in more structured customer research, through the online panel and focus groups. Section D summarises the feedback received through these routes.

# D. Feedback from customers

73. This section summarises the responses of the online community, participants at the customer research workshops and responses to the 'Shape your water future' Engagement Tool.

## *Online community*

74. Online community members are participants who had taken part in research and engagement activities conducted by Thames Water and had expressed a willingness to continue giving their views via an online forum. They were, therefore, more informed about water issues and Thames Water than typical customers. The majority of online community respondents were household customers and just over half were based in London, as shown in Table 5 and Table 6. These participants completed a version of the online survey.

**Table 5: Submission by online community – stakeholder type**

| **Online community – stakeholder type** | Number of responses |
|---|---|
| Thames Water household customer | 153 |
| A representative of a business | 11 |
| Developer or housebuilder | - |
| Stakeholder of Thames Water | - |
| Thames Water employee (not a customer) | - |
| Thames Water employee (also a customer) | - |
| Other | 10 |
| **Total** | **174** |

**Table 6: Online community – geographic location**

| **Online community – geographic location** | Number of responses |
|---|---|
| Surrey and Hampshire | 23 |
| Gloucestershire and Wiltshire | 13 |
| Oxfordshire and Berkshire | 30 |
| Bucks, Beds, Herts and Essex | 17 |
| East London | 22 |
| West London | 11 |
| North East and North West London | 28 |
| South East and South West London | 30 |
| **Total** | **174** |

75. The online community were asked all of the consultation questions (in two phases so as not to overwhelm them). The main points raised were:

- Online community members were reassured that Thames Water was planning for severe drought, but most felt that works should be speeded up to be in place by 2027.
- Many emphasised the importance of water efficiency both in terms of educating customers but also reducing leakage.
- Most community members felt the approach to developing the plan was sound, in that it reflected the priorities of customers; and they felt that they understood how decisions had been made. They were broadly positive about the overall proposed plan. There were few negative responses – if they did not make an explicitly positive comment, members tended to use the questions to reiterate their views on which aspects of the plan were important to them (for example leakage).
- Community members were largely positive towards the idea of Teddington Direct River Abstraction, although many wanted reassurance about the environmental impact, and others wanted more information about how the option would work.
- Views about water transfers were more mixed – while many liked the idea, others voiced concern about the potential impact on bills, and others about what would happen in a drought.

### *Workshops*

76. Four workshops of household customers were conducted in areas potentially affected by specific proposals in the draft plan. Sessions were convened in Abingdon, Teddington, Lechlade and East London (Stratford). Each session lasted three hours and the total number of attendees was 75 household customers. The customers were recruited to ensure a broadly representative spread of life stages and demographics. Members of campaigning organisations were specifically excluded in order to explore the views of the 'silent majority' i.e. those who had not already submitted a response to the consultation and / or those who were not members of campaigning organisations (either in favour or opposing proposals in the draft WRMP19).

77. Discussions at the workshops focussed on the proposed draft WRMP19 rather than the early consultation questions about the development of the WRMP19. The main outputs of the discussion are noted:

- Participants were positive about the overall plan. They spontaneously identified water supply as being a key future issue - but had not appreciated the full extent of the potential deficit. They welcomed the fact that the issue was being addressed via a number of different solutions.
- Most felt that leakage targets did not go far enough. They also felt that the metering programme could be more ambitious.
- Of the different water resource options, consumers were most positive about the reservoir (this was true in Abingdon and elsewhere) as they saw it as providing a significant source of future water supply, but also as offering additional benefits such as recreational activities. However, they wanted reassurance that the necessary infrastructure would be in place for the build and that those currently living in the area would be treated fairly.
- Once they understood how the option would work, consumers were broadly positive about Teddington abstraction as they saw it as a pragmatic solution making the most of existing resources. However, there were some concerns about the environmental impact of the scheme.
- Water transfer as a concept was somewhat more polarising, with some seeing it as an obvious solution while others voiced concern about its reliability.
- Participants were initially hesitant about water reuse because of its energy intensity and use of chemicals, although some saw it as a sensible use of available water resources.
- While some were positive about the aquifer scheme, most felt that the amount of water this option generated was negligible and it was better to focus on the options that generated greater water supply.

## *Customer engagement tool*

78. We developed an interactive customer engagement tool (CET) to support engagement through the development of the Business Plan and the draft WRMP19, to seek customers' views on what levels of service they expected from us and which services they would prioritise. Illustrations of the CET are shown in Figure 9.

**Figure 9: Illustrations of the customer engagement tool**


79. At the consultation stage we developed a more customised update of our customer engagement tool. Our vision was to make it personal by creating 'My Water World' and 'Your Water Future', with the aim of putting our customers in control of their water future. Customers had the freedom to build and select their own personal preferred level of service and by referencing their own bill. Using novel graphics, gamification and a simple user interface, our customers were able to record their results easily. We were transparent in our service-level costs, so our customers could understand our charges and how they related to their annual or monthly bill. The objective was to see how our customers would balance services across eight key areas of the plan (areas where they had previously shown key interests) with the impact they had on their bill.

80. We promoted the engagement tool through other stakeholder organisations, water bill inserts and meter visits to engage customers as well as recruiting a large sample of representative customers to use the online tool to ensure we gained robust results.

81. The responses to the engagement tool in relation to drought and leakage are noted below.

- For leaks, 52% chose a higher service level than the proposed 15% reduction in leakage
- For drought, 55% chose a service level within a year of the proposal (to protect all customers in the event of severe drought by 2029 -2030). 25% wanted a higher service level than what was proposed and 35% wanted a lower service level

## *Feedback from customers*

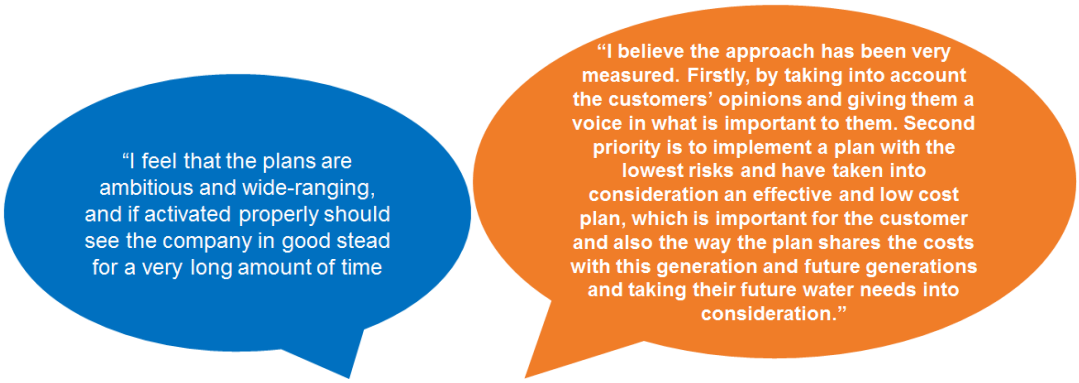
82. A summary of the feedback from the three customer channels - online community, participants at the customer workshops and responses to the 'Shape your water future' engagement tool have been presented, with more detail presented in the report compiled by Community Research[11].

[11] Shape your Water Future, A report on the public consultation, Community Research, June 2018

### Approach to developing the plan

83. Overall customers were reassured that Thames Water is thinking ahead and planning for the long term future. The majority of respondents were broadly positive about the overall proposed plan. The majority considered that the approach was sound, in that it reflected the priorities of customers; and they felt that they understood how decisions had been made. Few online community members responded negatively; if they did not make a positive comment they tended to focus on aspects of the plan that were important to them (Figure 10).

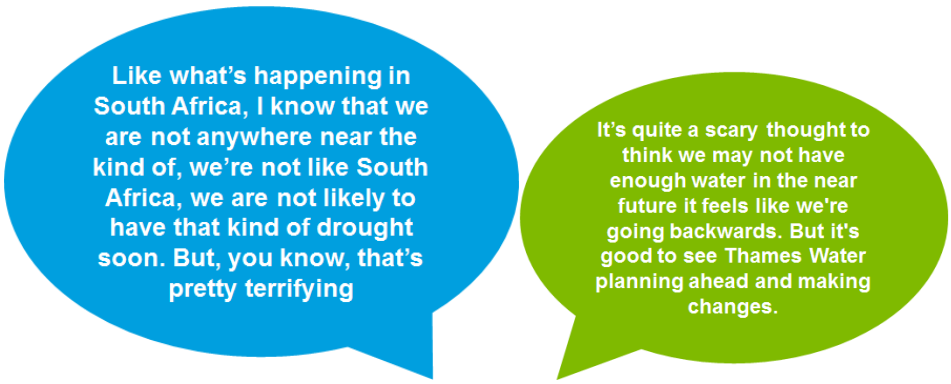
**Figure 10: Quotes from customer workshops**




### *Planning for greater resilience to severe drought*

84. Overall customers supported proposals to manage water supply in the event of severe (1:200) drought (Figure 11). They considered that restrictions such as hosepipe bans were manageable but having water supplies cut off was much more difficult to accept. There was a spread of views around the timing of achieving the higher levels of resilience. Respondents to the interactive tool were asked to select their preferred service level and were given the cost implications of their chosen service level; overall a majority of respondents (approximately 55%) selected a level of service of either 2029 or 2030.

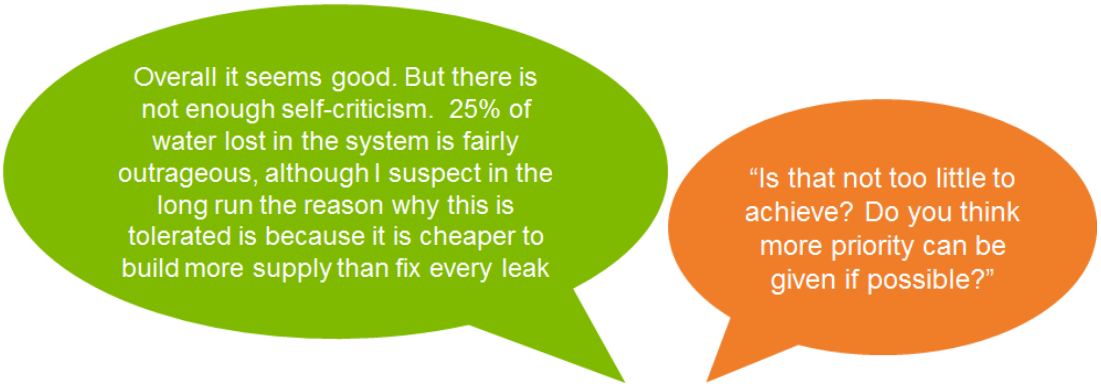
**Figure 11: Quotes from customer feedback on drought resilience**



***Leakage reduction***

85. There was broad support for a leakage target, with some customers suggesting that the target needs to be higher and/or that leakage needs to be the company's priority before looking for alternative sources of supply (Figure 12). Some customers recognised that it was not a straightforward issue; that there is a legacy of ageing infrastructure and that fixing leaks has the potential for disruption. Concerns were also expressed about the deliverability of the target set. Customers wanted reassurance that leaks would be fixed for the long term – stating that it is important that the fixes are done properly now to avoid further leaks in the future. Customers responding to the CET were provided with cost information, and 52% of respondents wanted a higher service level than the proposed reduction of 15% and 48% supported Thames Water's proposed service level.

**Figure 12: Quotes from customer workshops on leakage reduction**




***Metering***

86. The majority of respondents were positive about the household metering programme, feeling that it was a fairer system and that it was an effective way of reducing household consumption. Some questioned whether the programme could be advanced, and there were calls for an awareness raising campaign about the benefits of metering in terms of reduced costs and consumption and also for consumer education at the time of meter installation. A minority were strongly opposed to meters, particularly compulsory metering; and other issues raised focused on fairness, affordability, data privacy and use of smart technology.

***Promotion of the efficient use of water***

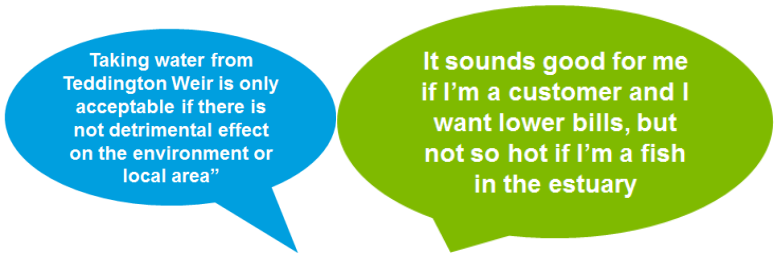
87. Overall customers were positive about action to promote water efficiency and whilst it was recognised as being likely only to provide a relative small amount of water, it was considered to be an important part of the overall plan. They thought also that it was important that people were informed of the reasons for using water efficiently, as well as how to do it. A few customers raised the use of non-potable water being used to flush toilets and working with developers and manufacturers to achieve this.

***Developing new resources***

### Teddington direct river abstraction

88. Customers were in the main guardedly positive towards Teddington direct river abstraction (Figure 13), considering it to be a pragmatic solution with a relatively short lead time; although many wanted reassurance about the environmental impact of the scheme and its sustainability, and considered that the local community would be opposed, such that if it were taken forward it would be vital for Thames Water to engage with the local community

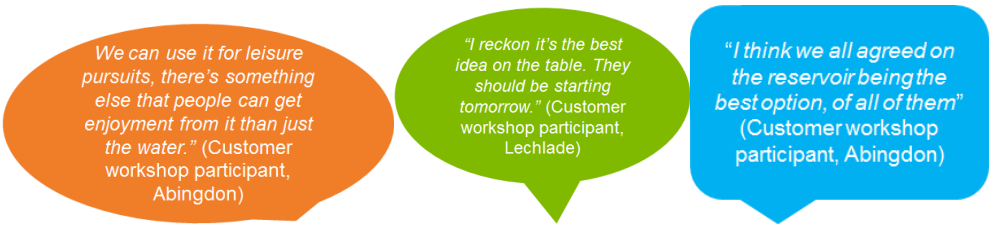
**Figure 13: Quotes from customer workshop on Teddington DRA**




### Abingdon reservoir

89. The majority of all workshop participants, including those in Abingdon, were very positive about the idea of building a new reservoir (Figure 14). Workshop participants saw it as an investment in the future – not only for securing the water supply for future generations but also for providing recreational and leisure activities for the local community. The idea of it adding positive benefits to the environment in terms of rejuvenating wildlife particularly appealed, and they felt that it seemed more 'natural' than some of the other options, and less invasive. This option was also supported for being a tried and tested option; because of its familiarity customers found it easier to understand than some of the other water supply solutions discussed. Abingdon participants knew that there had been a long-running argument over its construction and felt that a small minority of locally interested parties was standing in the way of progress. They thought it would be unfair if those who were opposed to the reservoir managed to stop its construction. They felt that the people objecting to its construction should be considering the wider picture of securing water supply in the Thames Water area. However, they did call for businesses and households directly affected by its construction and operation to be properly looked after, and did raise concerns about the long period of construction.

**Figure 14: Quotes from customer workshops on the reservoir**



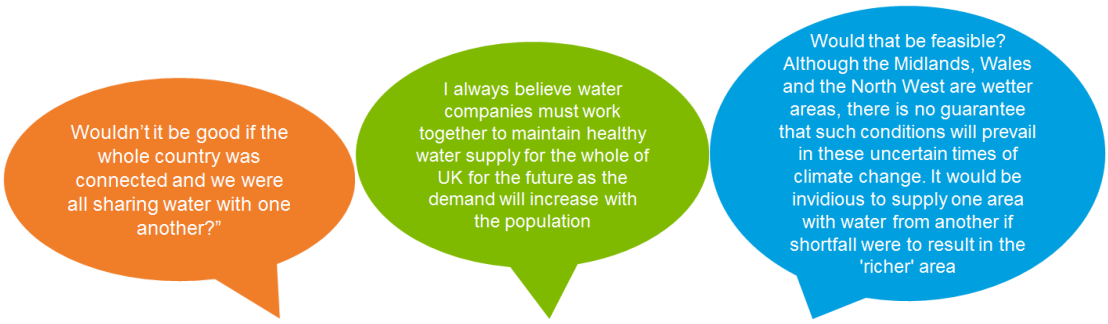
### *Water reuse*

90. Most consultation participants were not particularly keen on the idea of water reuse. There was an instinctive aversion to the concept amongst many although some became more positive over the course of discussions as they gained a better understanding of how it would work. Beyond the initial dislike, other concerns were the amount of energy and chemicals required. There were some supporters who felt it was a sensible solution and considered that it would be easier to implement than some of the other solutions but that it needed sensitive presentation.

### *Water transfers*

91. Consultation responses (Figure 15) about water transfers were very mixed; with some positive feedback stating that it was a sensible solution if other regions had an excess of water, and instinctively liking the idea of greater co-operation. A number of participants favoured the idea of canals being restored to enable transfers. Others voiced concern about the potential impact on water bills, what would happen in a drought, contractual requirements, the potential environmental impacts and the supply risks involved.

**Figure 15: Quotes from customer workshops on water transfers**




# E. Main issues raised in the public consultation

92. In this section we focus on the views of stakeholders, organisations and individuals who submitted a freeform response by email or in writing or online. There were several common issues that were raised by consultees. We have identified the common issues, summarised the key points in relation to each issue, set out our consideration of the issue and explained the changes that have been made to the draft plan, where appropriate, as a result. A summary of the views of stakeholder organisations and individuals has also been reported by Community Research in their report[12] on the public consultation.

[12] Shape your Water Future, A report on the public consultation, Community Research, June 2018

93. The main issues addressed in this section are:

- Population and property projections
- Current and future water supply
- Managing demand for water
- Leakage reduction
- Teddington Direct River Abstraction
- Severn-Thames Transfer
- South East Strategic Reservoir
- Assessment of environmental effects
- Planning for the wider South East region
- Deciding on the Preferred Plan

## *Population and property projections*

### *Consultee issues*

94. There were a number of comments on the population and property forecasts. A number of local authorities queried whether updated projections had been taken into account in the forecasts. The robustness of the short term and long term forecasts was also challenged. The comments can be grouped into the following categories:

- **Projections seem fine but need further checking or updating**: these comments reflect that the projections have been prepared in line with industry guidelines and are based on local plan data; however there is awareness that Local Authority local plans are updated from time to time and that the data will need to be revised to reflect up-to-date information.
- **Projections are too low**: the majority of these comments were submitted by Local Authorities focused on the need to ensure that our draft WRMP19 accurately reflects growth planned for in emerging local plans, and that growth has been fully taken into account. Oxfordshire County Council, South Oxfordshire District Council and the Environment Agency raised concerns that the projections were lower than local plan figures and that the draft plan has not taken into account further growth forecasts, e.g. Oxfordshire Growth Deal
- **Projections are too high**: Campaign to Protect Rural England (CPRE), Group Against Reservoir Development (GARD), and Parish Councils located in the vicinity of the proposed reservoir were among the commentators suggesting that projections were too high and arguing that local authority growth plans are aspirational rather than realistic, and that is impossible to predict the impact of Brexit on population. They argued that this undermined the draft WRMP19 as a whole and the need for the Abingdon Reservoir in particular.

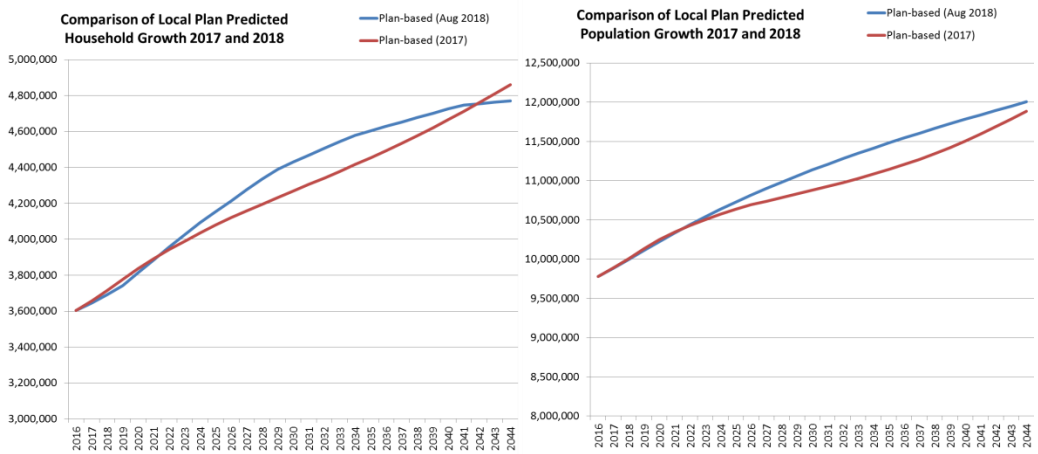
***Our consideration***

### Population projections to 2020 – 2045

95. We have developed population and property growth projections using local plan data, in compliance with industry guidelines. We contracted Edge Analytics, a consultancy specialising in demographics, to produce 25-year plan based population and property projections for all Water Resource Zones in our supply area. Edge Analytics contacted the 95 local authorities within our region and requested local plan housing growth forecasts, and combined this with site allocation data. We used the most up to date population and property information from each of the 95 local authorities within our supply area that was available when we completed the data collection exercise in August 2017.

96. We recognise that there will be changes to local plan forecasts as these plans are reviewed and updated. In response to these concerns we collated additional data in August 2018 to compare the data sets and to understand the significance of the changes since the 2017 data collation. This exercise showed that, overall, local authorities are planning for higher growth. We were not able to use the 2018 data to revise our forecasts due to the time required to collect and analyse the data; but Figure 16 shows the comparison of data sets that was completed.

**Figure 16: Comparison of 2017 and 2018 data sets for population and property forecasts**




97. A number of consultation responses queried our consideration of growth across the wider south east region, beyond the boundaries of Thames Water's supply area. We have considered regional demand using a joined up approach through our work with the Water Resources South East group and we have had regular and continuing discussions with the other water companies, including Affinity Water, to be satisfied that regional demands are appropriately taken account of in our revised draft WRMP19.

### Population projections 2045 - 2100

98. We appointed a leading demographer from the University of Leeds to develop trend based projections to 2100. This work was presented at the Water Resources Forum in July 2017.

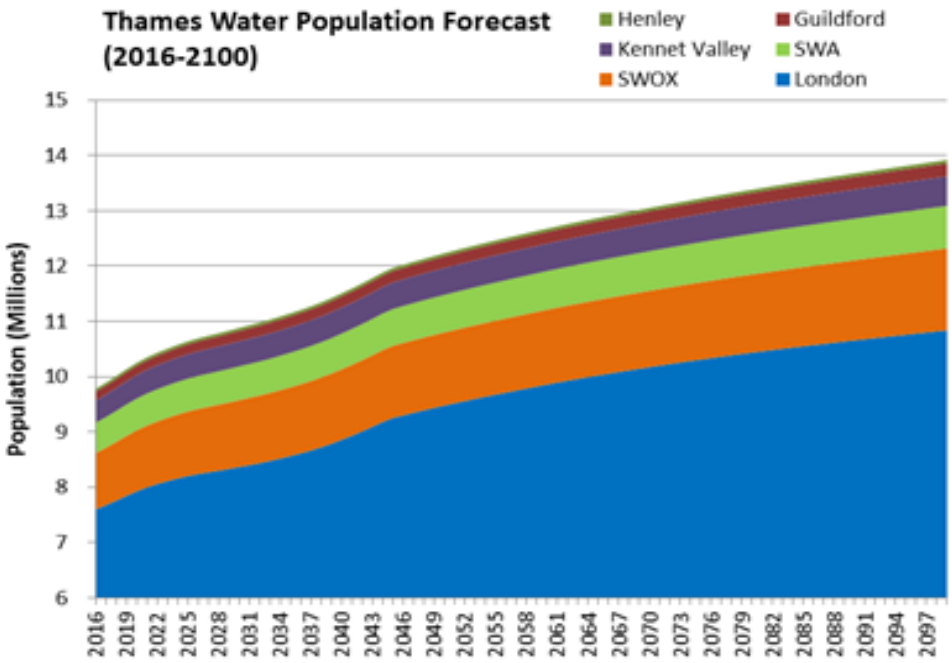
99. Since the publication of our draft WRMP19 we have revised our projections of population growth after 2045 in line with the 2016 Office of National Statistics national forecasts. The national forecasts were disaggregated to regional level in 2017. This work led to reduced population forecasts to 2100 by around 2 million, from 16 million to 14 million. We shared this work with stakeholders and interested parties at a meeting in March 2018.

100. The revised population forecast is presented in Figure 17 and a comparison between the forecasts presented in the draft WRMP19 and in the revised draft WRMP19 is provided in Figure 18. Population is forecast to increase by 2.1 million by 2045 and by 4.1 million by 2100.

101. The revised property forecast is presented in Figure 19, and comparison of the forecast presented in the draft WRMP19 and revised draft WRMP19 is provided in Figure 20. The number of new households is forecast to exceed 1.25 million by 2045 and 2.5 million by 2100.

102. In addition it is worth noting that recent updates to local authority plans have resulted in increases of more than 100,000 persons and properties above those included in the revised draft WRMP19 by 2045 and key growth plans such as the Cambridge, Milton Keynes and Oxford (CaMKOx)[13] growth corridor could potentially result in up to 250,000 more properties within our SWOX water resource zone.

**Figure 17: Revised draft plan population forecast 2016-2100**




[13] Department of Transport, H M Treasury, Highways England and Jesse Norman MP, September 2018, Corridor announced to unlock full potential of England's economic heartland

**Figure 18: Comparison of population forecast in the draft and revised draft plan**

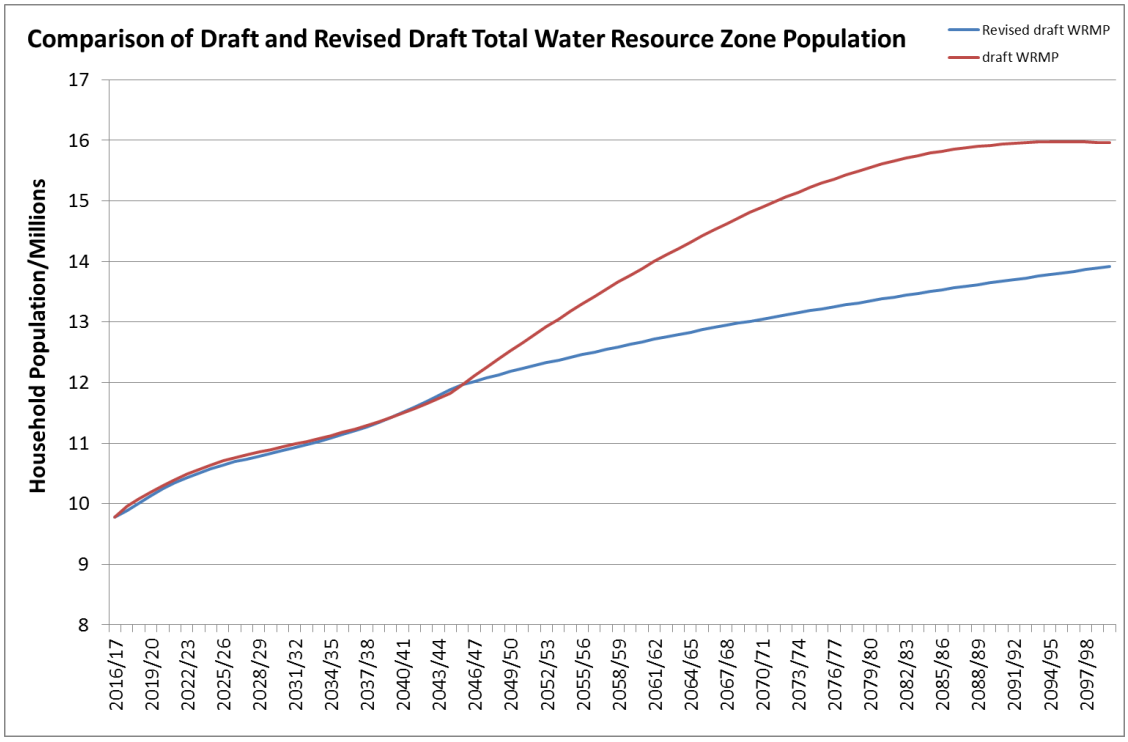



**Figure 19: Revised draft plan property forecast 2016-2100**

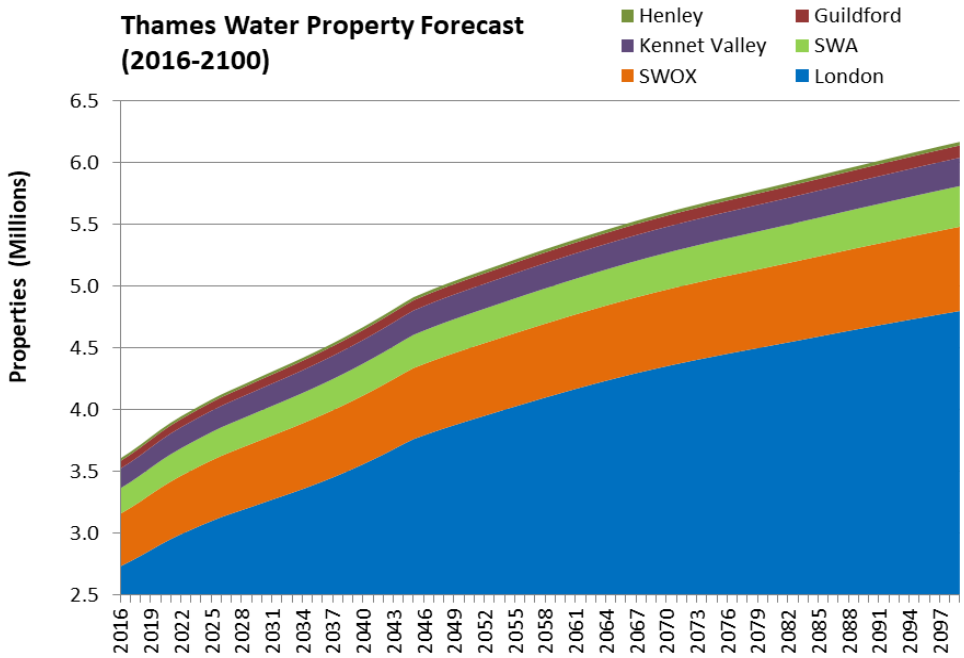
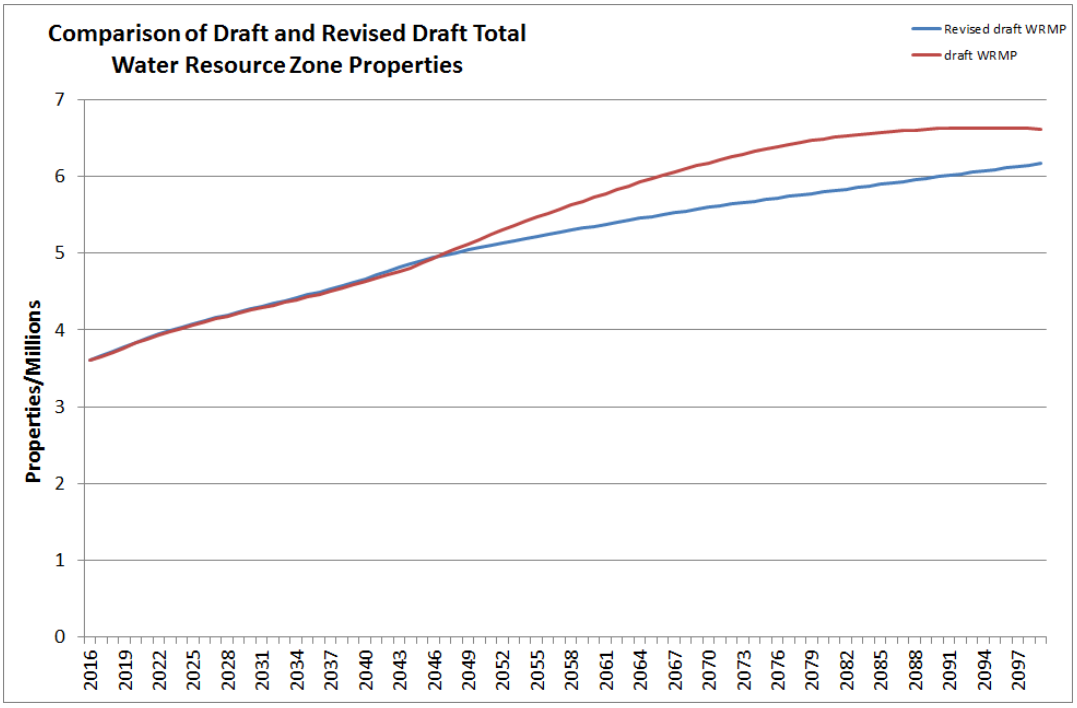


**Figure 20: Comparison of property forecast in the draft and revised draft plan**




103. We recognise that there will be changes in forecasts when looking over a long time period. We have, accordingly, completed additional scenario analysis and adaptive planning to ensure our plan is robust to changes in long term population forecasts. The scenario analysis is included in Section 10 of our revised draft WRMP19. We considered forecasts using ONS 2016 Trend based forecasts with high and low variations. This analysis showed that if demand from population growth increases, the development of further groundwater schemes would be able to provide the necessary water supply until a large strategic resource scheme is delivered in 2037. The process of water resources management planning is iterative with annual reviews and five yearly revisions. As such, there are sufficient opportunities to make adjustments to take into account changes to our projections over the planning period. That said, in circumstances where there is a growing water supply shortfall across our area and the wider South East region, it is clear that we cannot delay making the long term best value resource decisions that constitute our revised draft WRMP19 preferred plan.

***Revisions to the draft plan***

104. We acknowledge that there have been, and will continue to be, updates to local plans. We will work with local authorities and track and assess the impact of the revisions to the local plans to understand if water resource action is required. To this end we have completed an additional review to understand the significance of the 2018 updated forecast. This is reported in Section 3 of our revised draft WRMP19.

105. We have updated our population forecasts from 2045 to 2100. This update is reported in Section 3 of the revised draft WRMP19.

106. We have completed additional scenario analysis to assess the impact of changes to the population forecasts to ensure our revised draft WRMP19 is robust and can accommodate

changes to future growth. This analysis has concluded that we have sufficient contingency to accommodate further growth and is reported in Section 10 of the revised draft WRMP19.

## *Current and future water supply*

### *Consultee issues*

107. There were a few comments around the need for more robust calculations of current water available for use and suggestions about how to improve baseline supply including reducing outage and process losses. We have reviewed the technical issues raised by the EA and have completed work to address their concerns.

108. The Group Against Reservoir Development (GARD) challenged the assessment of the impact of climate change on deployable output for London's supplies of 125 Ml/d by 2045 and 230 Ml/d by 2100.

109. GARD also challenged the methodology for resilience design criteria and the use of the 1 in 200-year design standard for deployable output; and contended that, in determining the resilience standard for London, we should consider the allowance for droughts worse than historic that is already provided by the allowance for emergency storage in the London reservoirs and in headroom.

### *Our consideration*

#### Improvements to the baseline supply forecast

110. **Outages**: We have explained in Section 4 of the revised draft WRMP19 the changes that we have made to the period of record used and its impact on the calculation of outage, the use of residual outages, outage throughout the planning period, the reason for annual average being the same as critical period, consideration of outages longer than 90 days and options to reduce outage.

111. **Strategic scheme**: We have included a description of how demand restrictions and strategic schemes are triggered in Section 4 of the revised draft WRMP19. We have addressed the risk around the longevity of the West Berkshire Groundwater Scheme (WBGWS), one example of a strategic scheme, as a 'What-If' scenario as part of programme appraisal in Section 10 of the revised draft WRMP19.

112. **Impact of more severe droughts**: We have assessed the impacts of a 1:200 year drought and included the assessment results in Table 10 in Appendix A of the revised draft WRMP19. This demonstrates that we can manage a 1:200 year drought but would require the use of Drought Permits in the period to 2030. We have assessed the potential impact of 1:300 and 1:500 droughts in our Drought Plan and this also shows that it is possible to maintain supplies through these droughts with the use of Drought Permits (DP) over an extended period and with Drought Orders (DO) to ban non-essential water use. The environmental and economic impact of prolonged use of DPs and DOs would be severe, particularly in terms of the environment and, in our view, it is not sustainable to plan to maintain water supplies on this basis. Therefore in our draft WRMP19 we have proposed to develop an increased resource

base so that we are resilient to 1:200 year drought without the requirement for prolonged use of Drought Permits from 2030.

113. It should be noted that the resilience described in our Drought Plan is for the duration of the current plan only and so relates to the next 6 years, after which we will develop our next version of the plan. Therefore the Drought Plan does not include the impacts of future growth in population or climate change; and so without new resource development or an improved supply demand balance, we are not likely to be resilient to more severe droughts for the period of our next Drought Plan.

114. The EA has confirmed that its concerns regarding technical issues affecting our baseline supply forecast have been fully addressed

### Impacts of climate change

115. We commissioned HR Wallingford and WS Atkins to investigate the potential occurrence of more extended, severe droughts than those that have occurred within the historical record used for water resource planning. This confirmed that prolonged periods of drought, more severe than those seen in the historical record, are predicted to occur. Further climate change evidence for the MaRIUS project data, and further work completed by the Centre for Ecology and Hydrology (CEH), showed that the number of droughts of moderate severity or greater in the Thames catchment is projected to increase into the future; these results are presented in Section 11 of the revised draft WRMP19.

116. We assessed climate change impacts using the UKCP09 medium emissions scenario for the 2080s in line with best practice methodologies to ensure that the revised preferred WRMP19 is robust to both the central estimate impact on water available for use and the uncertainty surrounding this within target headroom. The high emissions UKCP09 scenario for the 2080s has also been assessed for London which is shown to be slightly more wet and dry at the extremes, while overall slightly wetter on average than the medium emissions scenario.

117. We can therefore confirm that the estimates of climate change included in the revised draft plan are not 'improbable worst case' as asserted by GARD but are a modest central estimate. Work undertaken by HR Wallingford has indicated that the impacts of climate change forecast to occur in the 2080s could actually occur as early as the 2040s. We have examined this potential occurrence as a scenario to test the robustness of our preferred plan in Section 10 of the revised draft WRMP19.

### Resilience design criteria

118. We have used accepted, technically correct, methods to evaluate the resilience of options based on net yield and a comparison of the conjunctive use of the system before and after drought. This has been fully reviewed through the Water Resources Technical Forum. For the South East Strategic Reservoir Option, this included additional work that fully tested resilience against a wide variety of droughts (sampled correctly from large data sets to provide a representative range of intensity, duration and seasonality), which demonstrated the assessment of resilience and effective yield to be a robust estimate.

119. We are required to improve resilience to drought to 1:200 year severity in line with industry guidelines; this is endorsed by Ofwat and supported by Government.

120. The point at which emergency storage is breached represents the point at which abnormal demand restrictions such a standpipes would have to be implemented, and therefore represents the point of failure of the system. This is a basic principle of water resources planning, reflected in numerous guidance documents. The Water UK Long Term Water Resources Planning study concluded that the societal cost/benefit ratio of avoiding emergency restrictions down to the 1 in 200 level through investment was overwhelmingly in favour of investment. In addition, the National Infrastructure Commission has concluded that attempting to manage droughts of 1 in 200 year return periods through the use of emergency response measures during emergency storage recession is not cost effective and carries a high risk to society, the environment and the economy.

***Revisions to the draft plan***

#### Improvements to the baseline supply forecast

121. We have included additional text in Section 4 of the revised draft WRMP19 to explain the modelling approaches used including clarification of the Deployable Output assessment in the Thames Valley for zones with a mix of source types (groundwater, surface water with associated reservoir storage and run of river). We have updated the Deployable Outputs, water treatment works capabilities, process losses and outage allowance with the best available information.

#### Climate change

122. We have included additional information in Section 4 and Appendix I on Future Flows work and the Severn Thames Transfer Study (CEH, July 2018)[14] to evidence the impacts of climate change on future water resources.

123. We have completed a stress test around the climate change trajectory that has been included in the revised draft WRMP19 as presented in Section 10.

#### Resilience design criteria

124. There are no changes made to the draft WRMP19. The further analysis of the resilience of the reservoir to drought has been completed and shared with stakeholders who considered the approach taken to be robust.

## *Sustainable abstraction and the protection of chalk streams*

***Consultee issues***

125. A large number of stakeholders expressed concerns about existing abstractions adversely impacting water courses and specifically chalk streams. They did not consider that the draft WRMP19 reflected the aspiration to protect vulnerable chalk streams; it did not go far enough, move fast enough, and was not clear enough about what steps would be taken.

[14] Centre for Ecology and Hydrology (July 2018), Severn Thames Transfer Study.

126. Stakeholders sought clarification on the sustainability reductions that would be included in the revised draft WRMP19. Stakeholders also called for consideration of the future long term risks from abstraction in light of climate change and associated changes in river flow patterns and groundwater levels.

***Our consideration***

### Environmental impacts of abstraction on chalk streams

127. Over recent years we have made significant reductions in abstraction from groundwater sources which were considered to have the potential to adversely affect chalk streams and vulnerable watercourses. We have made a commitment to stop further abstractions which adversely affect vulnerable chalk streams and water courses. We intend to address the adverse environmental impact of abstraction on chalk streams through the Restoring Sustainable Abstraction Programme in conjunction with the Environment Agency. To enable this, a replacement resource will be required; and so the reductions cannot be implemented until a major new resource is developed, which is proposed to be in 2037, as detailed in Section 11 of our revised draft WRMP19, when the South East Strategic reservoir becomes operational.

### Sustainability reductions

128. The Environment Agency grants abstraction licences and we abstract within the limits of the licence granted. We have worked with the Environment Agency to ensure our abstractions are sustainable through the Restoring Sustainable Abstractions Programme (RSAP) and the National Environment Programme (NEP). We have made significant reductions in abstraction over recent years and the majority of our abstractions are now considered sustainable by the Environment Agency.

129. In our revised draft WRMP19 we have included sustainability reductions at Hawridge and Bexley in the supply baseline in line with the Water Industry National Environment Programme (WINEP) published by the Environment Agency (March 2018).

130. At Hawridge, we have completed an investigation into the impact of abstraction and are currently undertaking an appraisal to assess options to mitigate the impact. These appraisals will include a cost benefit assessment and it might be that an alternative solution is implemented such as river augmentation or river restoration rather than a reduction in abstraction. If an abstraction reduction is made at Hawridge this would need to form part of a joint programme to also address the impact of Affinity Water's abstractions in the Upper Chess catchment.

### Sustainability reductions and climate change

131. The Environment Agency has provided a list of the sources where there is the potential requirement for licence reductions as a result of the possibility for increased abstraction within the existing licence to cause deterioration of flow or groundwater balance. This list has been provided through WINEP3 and sets out the requirement for investigations to be completed to understand the risk of deterioration by 2022. The WINEP provides no indication of whether

sustainability reductions are likely to be required and does not provide an indication of their likely volume if they are required.

***Revisions to the draft plan***

132. We have included the requirements of the WINEP3 in Section 4 of the revised draft WRMP19. The baseline supply demand forecast includes a sustainability reduction in SWA WRZ of 6.78 Ml/d average and 6.9 Ml/d peak Deployable Output resulting from a full cessation of the Hawridge licence implemented in 2024/25. We have also included a licence reduction in the London WRZ of 9 Ml/d (average) associated with the abstraction at Bexley to be implemented from 2024/25. Reduction at this site will improve flows in the River Cray in South East London.

133. Allowances for reductions in existing abstractions perceived to have an environmental impact on vulnerable chalk steams and water courses have been included in the revised draft WRMP19 from 2037.

134. We have developed a scenario to show the worst case in which all the sites identified in the WINEP need to be reduced to recent actual abstraction levels. This scenario provides a severe licence reduction volume and is not considered to be a likely outcome of the investigations but gives a scenario to show the potential greatest licence loss arising from the no deterioration requirement. This is presented in Section 10 of the revised draft WRMP19.

## *Managing demand for water*

***Consultee issues***

135. There was strong support for demand management, with some stakeholders calling for more ambition. The proposed reduction in average Per Capita Consumption (PCC) was challenged by some stakeholders who called for more stretching targets. There was a request for further information on the plans to deliver and monitor the implementation of the metering and water efficiency programme to provide confidence in delivery.

***Our consideration***

136. **I**n response to calls for greater focus on measures to manage demand from our customers and stakeholders we have reviewed our programme. We have proposed an extended programme to 2050 and beyond, which we consider is very ambitious but remains deliverable. It is important that we do not compromise the quality of the smart meter installation and customer engagement programme by trying to fast track the activity.

137. We have increased the pace of roll out of the progressive meter programme from 320k smart meters installed in London between 2020 and 2025 as presented in the draft WRMP19 to 365k in the revised draft WRMP19.

138. We have also enhanced our proposals to promote the efficient use of water to our customers and business and aim to achieve over 34 Ml/d water savings by 2025 in our revised draft WRMP19 compared to 21 Ml/d in our draft WRMP19. Our programme continues to be the largest in the industry, and includes Smarter Home Visits which are delivered by approved

plumbers who fix basic plumbing issues including 'leaky loos' and help the customer to understand opportunities to save water and money.

139. The combined metering and water efficiency programme is forecast to achieve a reduction of around 55 Ml/d of reductions in the next 5 years to 2025.

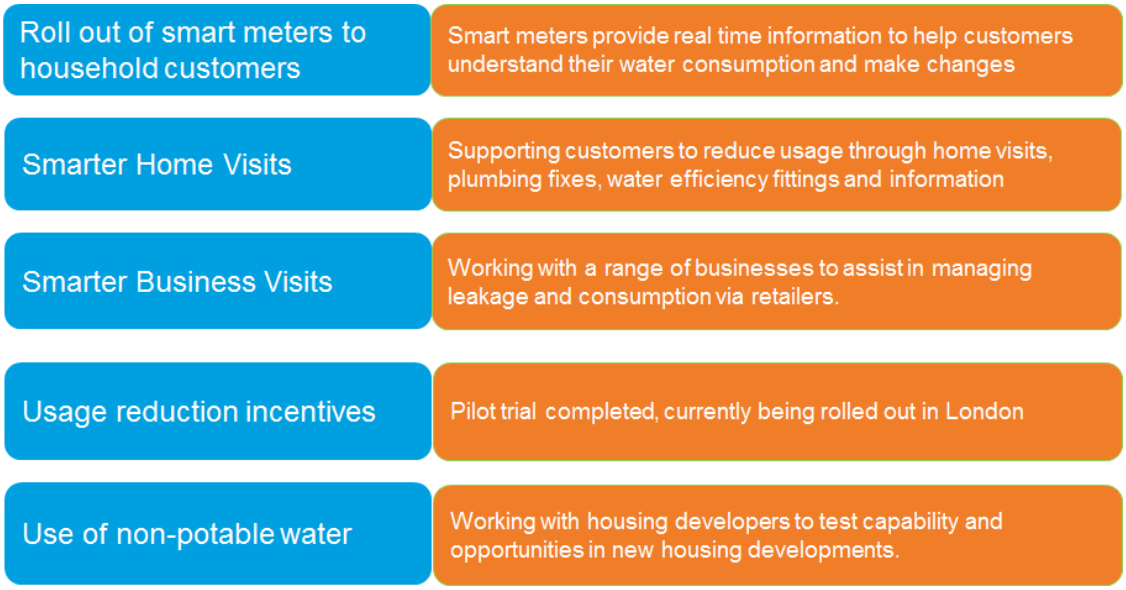
140. This will achieve a reduction in PCC from current levels of 144 litres per head per day (l/h/d) (2017/18) to 135 l/h/d in 2025 and 121 l/h/d in 2045.

141. We will continue to evolve our programme aiming to achieve further reductions in water use where possible. We recently reviewed the Artesia PCC study[15] commissioned by Ofwat testing reductions down to 50 l/h/d and are undertaking a similar study for our supply area. We consider that to achieve such significant reductions in water use will need assistance from central and local government introducing measures such as kite marks on white goods, monitoring and enforcement action on house builders and assistance with the development of non-potable water systems in new housing developments.

142. An overview of the main components of the programme to manage demand for water is presented in Figure 21.

143. We consider that our proposed programme is ambitious but achievable. We understand the call for a more demanding target but do not currently have evidence on which to base a target beyond our proposed target. We are keen to continue to evolve our demand management programmes and to work in partnership with Government, local authorities, developers and environmental groups to ensure we achieve the forecast reductions in water use and sustain these reductions over the longer term.

**Figure 21: Overview of the demand management programme**




[15] The long term potential for deep reductions in household water demand, Artesia report, April 2018. Available at: https://www.ofwat.gov.uk/wp-content/uploads/2018/05/The-long-term-potential-for-deep-reductions-in-household-water-demand-report-by-Artesia-Consulting.pdf

144. **Confidence in delivery**: We are committed to achieving our targets; however, we recognise that there is an element of risk within the ambition of our demand management programme. This has been taken account of through activities underway in this current period to develop options and by building option uncertainty into headroom as noted within the water resources guidelines. We have also built in a level of protection through the water trade agreement with RWE Npower and the new groundwater options.

***Revisions to the draft plan***

145. In response to the comments submitted on our current metering and water efficiency programmes and calls for more ambitious programme, we have reviewed our proposals and have included extended programmes of work in our revised draft WRMP19. Further descriptions of these demand management options and their inclusion in our preferred plan are presented in Section 8 and Section 11, respectively.

## *Leakage reduction*

***Consultee issues***

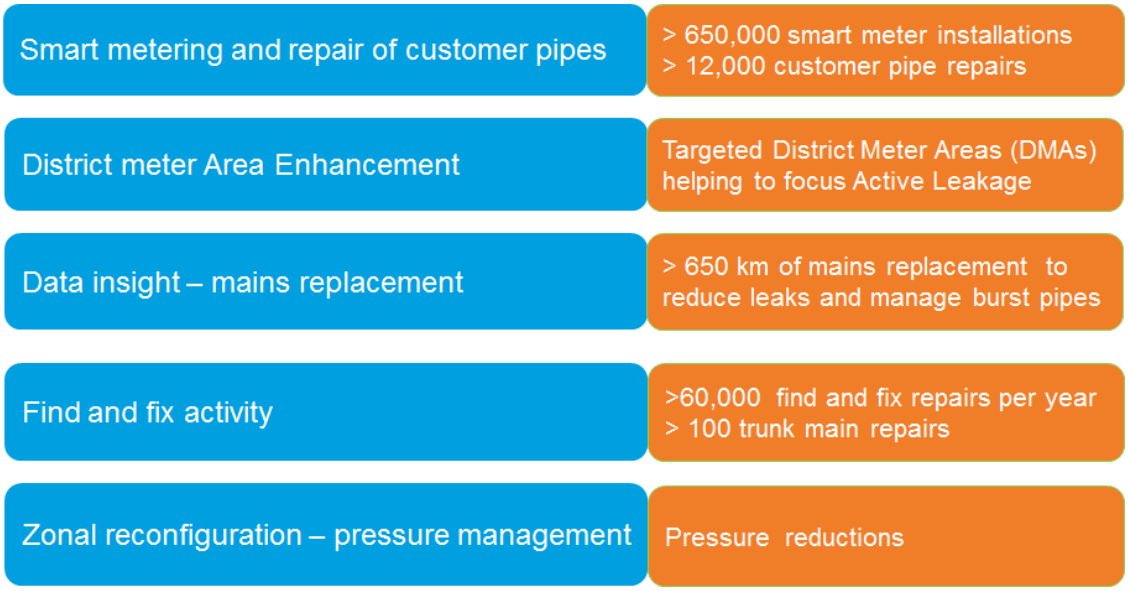
146. Some stakeholders questioned if the leakage reduction target was sufficiently ambitious, whilst others raised concerns about over-reliance on leakage reduction, and the risks around this for customers and the environment. There were requests for further information on how the leakage target will be achieved in light of recent performance. In addition, a number of consultees requested information on the company's longer term ambition for reductions in leakage.

***Our consideration***

147. **Leakage reduction target:** We have committed to reduce the volume of water that is lost from our water pipes through leaks by 15% (~100 Ml/d) by 2025. This target is beyond the sustainable economic level of leakage, but aligns with our customers' preference to reduce leakage, and regulator and stakeholder expectations.

148. **Further information on how the leakage target will be achieved:** We have enhanced our team of specialists dealing with leakage control and, building on our existing knowledge, we have identified opportunities to innovate and become more efficient and effective in targeting leaks and the delivery of our leakage programme. We will achieve the leakage reduction target through a range of activities as set out in Figure 22. Our aim is not only to achieve reductions in leakage but also to improve the structural condition of our water supply network.

**Figure 22: Action plan to achieve the 5-year leakage reduction target**




149. **Over-reliance on leakage reduction, and the risks around this for customers and the environment:** We recognise there is concern expressed by consultees around our ability to achieve the proposed leakage targets in our revised draft WRMP19, particular as we missed our leakage target last year (2016/17) with knock-on effects for the target this year (2017/18). We did, however, achieve our leakage target for 10 years prior to 2016/17 and have implemented a detailed leakage recovery plan to ensure that we again achieve our regulatory target of 606Ml/d at the end of the 5-year planning period in 2020.

150. There is uncertainty associated with the delivery of all demand management and resource options and, accordingly, as part of our planning approach we have included an uncertainty assessment relating to the volume of water provided by demand management activities including leakage reduction. This is catered for by inclusion of a buffer for uncertainties used in water resources planning, called headroom. We have also identified contingency groundwater options which can be implemented with a relatively short lead time to ensure the continuity of a secure supply of water.

151. **Longer term ambition for reductions in leakage:** Our customers, government and stakeholders have been clear that they want a significant reduction in current and future levels of leakage. We have committed to halve leakage from 2016/17 levels by 2050, this equates to a volume of 270Ml/d. This aligns with the recommendations of the National Infrastructure Commission (April 2018). Reducing leakage on this scale has not been achieved in the UK previously and we are exploring new and innovative technological approaches both in the UK and worldwide to secure our capability to achieve this commitment.

***Revisions to the draft plan***

152. We have committed to achieve a 15% reduction in leakage, ~100 Ml/d water saving between 2020 and 2025. We have committed to halve leakage by 2050. We have taken account of these targets in revising our plan as set out in Section 10 of the revised draft plan.

153. We have included further information on the leakage control approaches that we are applying and the work that we intend to undertake to ensure we can achieve our leakage targets. This is presented in Section 8 of the revised draft WRMP19.

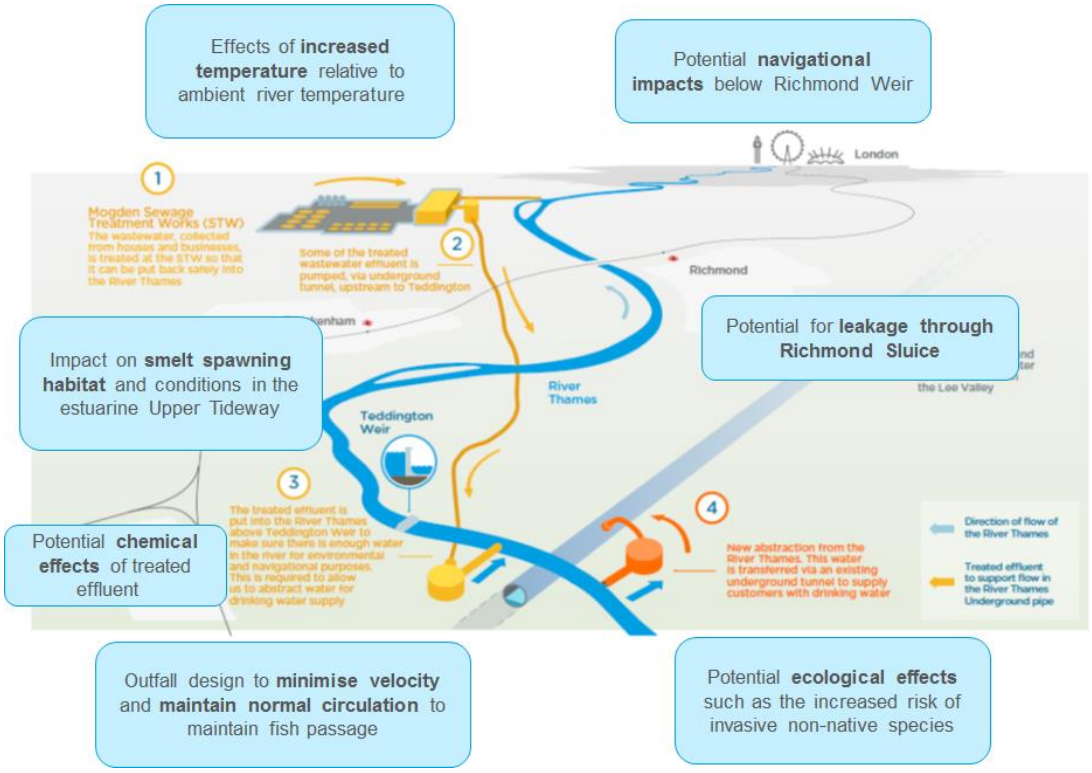
## *Teddington direct river abstraction (DRA)*

### *Consultee issues*

154. Overall customers supported the Teddington DRA scheme as a pragmatic and cost effective water supply option, subject to environmental concerns being addressed including protection being given to the sensitive location of the new infrastructure.

155. A significant number of environmental and other concerns were raised by regulators including the Environment Agency, Historic England and Natural England, and stakeholder organisations including river and angling-related organisations, the Port of London Authority, the River Thames Society, the South East and Thames Rivers Trust, and environmental NGOs. The main concerns focused on compliance with the non-deterioration objectives of the Water Framework Directive and potential adverse ecological impacts caused by changes in water levels, flows, temperature, water quality and sedimentation. There were also concerns expressed in respect of the potential impacts of the scheme on navigation. A summary of the issues raised is shown in Figure 23.

**Figure 23: Teddington DRA – a summary of the main concerns**




156. The Environment Agency set out a list of recommendations for further work to be undertaken to ensure compliance with the Water Framework Directive and recommended that the

scheme should only be included in our preferred plan if it could be demonstrated that it did not cause an unacceptable impact on the river environment. In its consultation response the Agency stated that the scheme was not acceptable as currently proposed.

157. Whilst the dominant view among stakeholder consultees was of concern, there was some support for the scheme principally from groups opposed to the development of a new reservoir, namely the Group Against Reservoir Development (GARD), the Wantage and Grove Campaign Group and a number of individuals. These respondents proposed that the scheme was less costly, less environmentally damaging, and offered better drought resilience than a reservoir. GARD also proposed that the scheme should be much greater in its scope.

***Our consideration***

158. Over the past 3 years we have completed a programme of work to develop the Teddington DRA scheme. This included work to understand the impact of the scheme on the River Thames upstream and downstream of Teddington Weir. HR Wallingford was commissioned to model the impacts of the option on the freshwater River Thames and the Tideway including: temperature, water level, salinity and velocity. The modelling results were used to inform an assessment of its impacts on ecology (including fisheries and benthic invertebrates) and navigation. Mitigation options to address the adverse impacts identified have been investigated. The modelling results and the mitigation options have been shared with the Environment Agency (EA) and the Port of London Authority (PLA).

159. This review has identified that one of the principal adverse impacts of the scheme would be an increase in water temperature in the freshwater River Thames locally above Teddington Weir and in the upper Tideway as a consequence of discharging treated effluent at Teddington. The potential temperature effects were identified as a key threat to the maintenance of the aquatic ecological balance in the river.

160. In the draft WRMP19 we reported the need to continue work to fully understand the potential adverse impacts of the scheme on the River Thames, upstream and downstream of Teddington Weir, and, specifically, to identify the design and operation of mitigation measures that would be required to ensure compliance with Water Framework Directive (WFD) objectives for ecology, notably maintaining (non-deterioration) the current Good WFD status for fish and invertebrates in the estuarine Upper Tideway WFD water body.

161. Since the publication of the draft WRMP19 we have undertaken further work to address the ecological concerns, specifically the potential impact of the increase in temperature in the freshwater River Thames and estuarine Tideway. The Environment Agency has advised that any mitigation measures would need to achieve a zero temperature uplift in river waters. We have, accordingly, investigated potential mitigation approaches including reducing or temporarily suspending the operation of the scheme and cooling the treated effluent prior to its discharge to the river. Both operational and engineering solutions to achieve a zero temperature uplift have been pursued; however, it has been concluded that, at present, exact temperature matching is not technically feasible given operational and control constraints[16]. We have discussed[17] this finding with the Environment Agency and have agreed with the

[16] Detailed information is included in the Resource Options Update Note, Mott MacDonald, August 2018
[17] 1 May and 13 July 2018

Agency that the mitigation options considered are not sufficiently effective to be included in the scheme design; and, as such, concerns must currently remain around the impact of likely temperature changes and, consequentially, the efficacy of the scheme to achieve compliance with WFD non-deterioration water quality objectives. As such, the Environment Agency and Thames Water have agreed[18] that the Teddington DRA scheme be removed from inclusion in the revised draft preferred WRMP19. This is presented in Appendix K of the Statement of Response.

162. We are nonetheless committed to continuing to research the viability of the scheme. The precise scope of this research will be decided in consultation with the EA, stakeholders and interested parties, and shall be completed by 2024 to inform the content of the WRMP24. In the first instance, it will include research to examine the sensitivity of the Thames ecosystem to discharges at all times of the year and into potentially viable mitigation approaches. Other issues identified which will also need to be assessed, include the risk of enhanced establishment of invasive non-native species and plants, potential chemical effects, impact on water circulation patterns, potential saline ingress, as well as navigational effects. The work to investigate and address the environmental concerns will be completed as a priority; and if this enables a conclusion that the scheme is environmentally feasible consistent with meeting WFD objectives, further work will then be completed to address other issues raised including any adverse impacts on navigation.

***Revisions to the draft plan***

163. Teddington DRA scheme has been removed from the feasible list of options considered for the revised draft plan and from the revised draft preferred plan. As noted, further research will be undertaken into the scheme in consultation with the Environment Agency and other interested stakeholders to inform the preparation of the WRMP24 as advised in Section 7 of the revised draft WRMP19 and associated technical documents, namely, the updated Fine Screening Report and the updated Direct River Abstraction Feasibility Report.

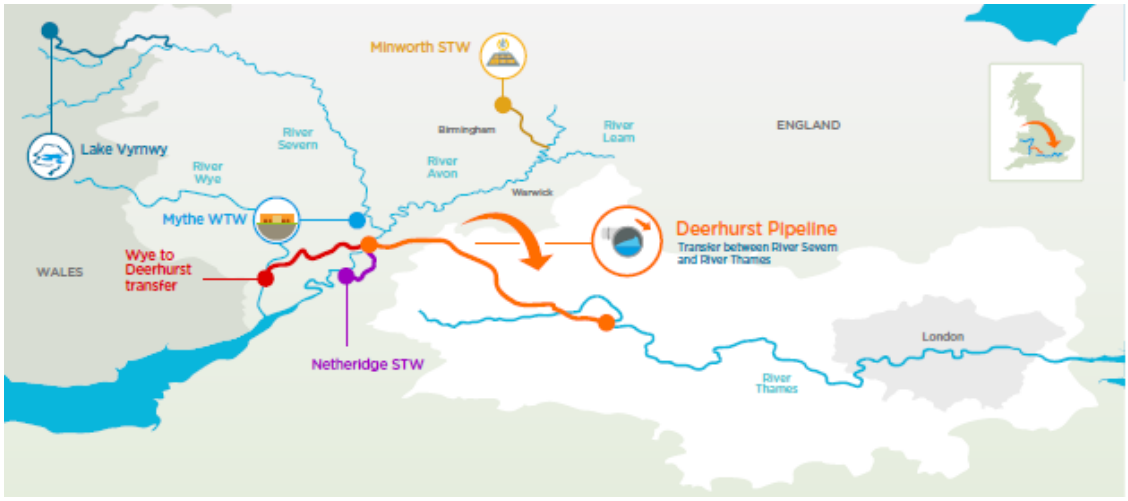
## *Severn - Thames transfer (STT)*

***Consultee issues***

164. We received a large number of responses on proposals for a transfer of water via the River Severn to the Thames in general and, specifically our decision not to use the restored Cotswold Canals for regional water transfers. Figure 24 illustrates the regional transfers under investigation.

[18] TW & EA joint note on Teddington DRA, July 2018

**Figure 24: Regional water transfers under investigation**




### Transfers via the River Severn in general

165. Responses to consultation about regional transfers via the River Severn in general were fairly balanced in terms of positive and negative comments. Some stakeholders raised uncertainties with the viability of the proposals.

166. Respondents who supported this option explained that it seemed common sense to move surplus water to a water-stressed area. They pointed out that this option seemed feasible; for example, United Utilities were already preparing for it and had included it in their draft WRMP19. In addition, it was said that its adoption could delay or displace large supply-side options that seemed less desirable (e.g. GARD made this argument about Abingdon Reservoir).

167. Concerns about transfers via the River Severn were raised by a range of different organisations with most negative responses coming from angling societies and river-related groups and environmental organisations. The concerns focused on potential adverse impacts on the river ecology from the transfer of invasive species, unwelcome changes in the quality and quantity of river flow, long term feasibility in the face of climate change and the complexities in terms of regulation.

168. Some stakeholders were aware that discussions about transfers via the River Severn were ongoing such that details about specific schemes were not yet available. As a result they said they were not yet sufficiently well informed to support or oppose them.

169. There was encouragement from regulators and opponents of a new reservoir, to continue to explore water transfers to the Thames via the River Severn.

### Transfers via Cotswold Canals

170. We received a large number of responses from members of the Cotswold Canals Trust and supporters of canals and canal restoration asking us to re-consider the use of restored Cotswold Canals to transfer water from the River Severn into the Thames region. The responses centred around two main issues; firstly the environmental, recreational, social well-

being and economic benefits that could be realised through the restoration of the canals; and, secondly, the reasons for rejection of the option and, in particular, challenging the transparency of decision making particularly in relation to the underlying cost calculation. Suspicion was expressed that Thames Water had biased its calculations toward options that it preferred, and that we had favoured conventional options rather than the innovative Cotswold Canals restoration option.

171. Stakeholders and interested parties were categorised in 3 main groups:

- Organisations responsible for canals in general and the Cotswold Canals in particular (Canal and River Trust, Cotswold Canals Trust, Stroud Valleys Canal Company).
- Local authorities with the Cotswold Canals running through them (Stroud District Council and Wiltshire Council).
- Individuals, many of whom stated that they were members of the Cotswold Canals Trust or residents living close to a canal.

172. There were some responses that highlighted a number of concerns with the proposals to transfer large quantities of water from the River Severn into the upper River Thames via the Cotswold Canals. For example, the Angling Trust (and associated bodies and individuals) mentioned that transfers via open water such as the Cotswold Canals, could cause problems with migration of non-native invasive species; movement of water with high algal loadings; and water loss. Natural England also expressed similar concerns.

***Our consideration***

### Transfers via the River Severn in general

173. There has been much recent focus on building a regional or national water supply network and using this to transfer water regionally and nationally.

174. In developing our draft WRMP19 we have looked in great detail at the potential for transfers of water from Wales, the Midlands and North West. In February 2018 we published a Raw Water Transfers (RWT) feasibility report setting out a number of Severn Thames Transfer (STT) options. There were a number of options considered that had incomplete feasibility assessments and our work has continued post the publication of the draft plan to define the options and assess their feasibility based on additional information supplied by third parties. The feasibility assessments are now complete and an Update Note[19] and a revised RWT feasibility report[20] on transfers have been issued with the Statement of Response.

175. We have assessed transfer options in the same way as we have assessed all feasible water resource options.

176. A summary of the issues raised and our consideration of them follows below.

177. **Availability of resource including potential losses:** We have been in discussion with the Environment Agency and Natural Resources Wales (NRW) regarding potential water losses in the River Severn brought about by transfers and have commissioned a study by HR

[19] Resource Option Update Note, Mott Macdonald, August 2018
[20] Raw Water Transfer Feasibility Report, Mott MacDonald, August 2018

Wallingford on this issue. We agreed an appropriate loss factor with the EA and this was applied to the Severn Thames Transfer resource support options as part of programme appraisal for the revised draft WRMP19.

178. **Concerns about the potential for invasive non-native species (INNS) to migrate into the Thames Catchment from the River Severn; and the possibility of high algal loadings in water transferred from the Lower Severn:** We have taken account of emerging Environment Agency guidance relating to invasive non-native species (INNS) and sought advice from an independent expert from the University of Cambridge, which is included in the Raw Water Transfer Feasibility report. In response to that advice, the Deerhurst Pipeline Severn Thames Transfer (STT) proposal was developed to include a treatment facility to mitigate the risk of the spread of INNS and other water quality and ecology concerns. Treatment included inlet / fish screens, settlement, ferric addition (as a coagulant and to facilitate phosphate removal), rapid gravity filtration (removal of coagulated solids, invasive species larvae and algae) and waste treatment. The closed pipeline solution would also reduce the risk of 'jump dispersal' of INNS between open water bodies. The INNS paper[21] states "*Given the range of other possible pathways for introduction of invasive species that already exist between the Severn and Thames, it seems that a well-designed and managed filtration system would reduce the risk of introductions of invasive species through a pipeline transfer to a negligible level*."

179. **Climate modelling suggests that droughts are very likely to become increasingly coincident between the Thames and Severn catchments in coming decades, meaning that water transfers in the future may become unviable during dry periods (when they are required most):** We commissioned HR Wallingford and the Centre for Ecology to review the likelihood of coincident droughts reducing water available for transfer from the River Severn to the River Thames in the Severn Thames Transfer (STT) options. The reports[22] [23] do indicate that when the River Thames is in drought the River Severn could also be in a drought; and this possibility has been taken into account in the stochastic modelling of yield undertaken to support the assessment of the STT options. A range of supporting water resource options have been offered to Thames Water by United Utilities, Severn Trent Water and Welsh Water; and only partially supported STT options have been included in the constrained list of options. These options would abstract water from the River Severn when the water level in the river is above the minimum set by the Environment Agency (known as Hands off Flow (HoF)). When the level in the river drops towards the HoF, the water resource support options would be brought on-line to maintain a flow of water for abstraction from the river. For the purposes of calculating the potential yield of the resource support options it is assumed that support volumes will be available on a put and take basis after allowing for losses, which have been assumed as being up to 20% in the baseline for the revised draft WRMP19. In this way the impact of coincident droughts would be mitigated. However, the Environment Agency has stated that on the basis of existing information, it would not support a put and take licensing arrangement and that the HoF would be maintained. This means that

[21] Thames Water WRMP19 Resource Options, Raw Water Transfers Feasibility Report August 2018, Appendix B1 Dr David Aldridge Risk Management of Invasive Species in the Severn Thames Transfer
[22] Centre for Ecology & Hydrology Severn Thames Transfer Study Final Report July 2018 Rudd AC, Bell VA, Kay AL and Davies HN
[23] HR Wallingford (December 2016), River Severn Flow Modelling, Drought coincidence

there remains a high risk that water from the River Severn would not be available for transfer to the Thames at times of low flow and drought.

### Transfers via Cotswold Canals

180. We have noted the significant number of responses in support of the restoration of the Cotswold Canals, and the use of the canals for transferring water from the Severn to the Thames.

181. In developing the draft WRMP19 we have undertaken detailed work to review and assess a large number of possible options including the transfer of water from other regions of the country via the River Severn to the River Thames. In assessing these transfer options we considered the possibility of the conveyance of water from the River Severn into the Thames catchment via a new pipeline or via the restored Cotswold Canals. As part of that exercise we worked closely with the Cotswold Canals Trust and shared with them the detail of our evaluation of the canal conveyance option.

182. We undertook and completed the Cotswold Canals feasibility study which investigated the technical feasibility of utilising restored Cotswold Canals for transfer of River Seven water to the River Thames. The report was initially produced in early 2016, and has now been updated in response to stakeholder and interested parties' consultation feedback, in particular, that received from the Cotswold Canals Trust in relation to the design, the costs and the environmental and social benefits that could be delivered. The report forms an appendix to the Raw Water Transfer feasibility report.

183. We have reviewed the potential benefits of options to partially and fully restore the Cotswold Canals to enable conveyance of water from the River Severn to the River Thames. In summary, there are criteria against where the Cotswold Canals restoration option performed better than the pipeline option. In addition to the biodiversity opportunities that restoration of the canals would offer, the other main benefits of the Cotswold Canals transfer relate to the economic and recreational benefits flowing from restoring the canals and the associated potential heritage conservation and landscape/visual amenity benefits. These wider economic and social benefits would only be fully achieved, however, if the Cotswold Canals including the Sapperton Tunnel were restored to allow navigation from end to end; but this would attract substantial additional costs. Whilst it is recognised that these benefits exist, the primary purpose of a water transfer scheme is to develop and maintain an efficient and economical system of water supply for the south east of England that is resilient to drought and unlikely to cause harm to the environment. The negative issues associated with water transfer via the Cotswold Canals relate to cost, water quality, operational complexity and the risk of the spread of INNS; and are sufficient to classify it a less suitable transfer solution than transfer via the Deerhurst Pipeline, despite weighing in the balance the potential benefits of the restored canals option. It is this reason that the Cotswold Canals water transfer option has not been included in our preferred plan.

184. Specifically with regard to the transparency of cost information, costs of options were determined using a standard methodology; and Thames Water cost models were used where these were appropriate. The costs assessments took into account the whole life cycle of a project and included the cost of construction (capital cost), the operating cost (assumed to be the transfer option fully utilised to allow for consistency) as well as the cost of carbon for each

option. These costs were discounted and then divided by the estimated yield of the scheme in order to 'normalise' them and allow for direct comparison between options.

185. We provided the Cotswold Canals Trust (CCT) with a breakdown of items included in the Cotswold Canals cost estimate with the cost of individual items shown as a percentage of the total cost. CCT provided detailed feedback on the cost estimate in May 2017 and further commentary on costs in their response to the public consultation. Mott MacDonald, on behalf of Thames Water, reviewed the CCT submission and, where considered appropriate, amendments were made to the cost estimates for both the 100Ml/d and 300Ml/d transfer options which related primarily to rationalisation of the number of pumping stations required to be included in the western section of the scheme. The Cotswold Canals Transfer Feasibility Study Report has been updated to reflect this proposal and to take account of other relevant stakeholder comments.

186. Based on the assessments completed[24] we concluded that a pipeline transfer remains the preferred efficient and economical system for the conveyance of water, rather than the use of restored Cotswold Canals, for the following reasons:

- **Cost:** The restoration of the canals, including the Sapperton Tunnel, to allow for simultaneous navigation and water transfer would be substantially more costly than a pipeline. A comparison between the Cotswold Canals restoration and the Deerhurst Pipeline costs is included in the Raw Water Transfers Feasibility Report; and we shared further information on the cost assessment with the Cotswold Canals Trust to allow them to review, challenge and comment on that information.
- **Operational complexity:** Conveyance of water by a canal that is open for navigation, would be significantly more complex than pipeline conveyance from an operational perspective and would necessitate extensive, continuing and involved cooperation between Thames Water and the external infrastructure operators / managers of the canals network. The open nature of the canal means that it is much more vulnerable to pollution incidents and also will have a much higher incidence of algal blooms than a pipeline conveyance mechanism. Furthermore, algal blooms are likely to increase over time given the forecast impacts of climate change and they pose a significant risk to water availability during hot, dry periods and could inevitably restrict the supply of water from this route, at a time when the water is most needed. We asked independent experts CEH (Centre for Ecology and Hydrology) to investigate this aspect for us and their report[25] supports this finding.
- **Environmental issues**: These included the spread of invasive non-native species. The restored canals transfer option carries a higher risk of spread of invasive non-native species than a pipeline water transfer as confirmed by an independent expert from the University of Cambridge and by our environmental regulators, Natural England and the Environment Agency.

187. The comparison between the Cotswold Canals restoration and Deerhurst Pipeline water transfer options has been updated in the RWT feasibility report and the Cotswold Canals

[24] Raw Water Transfers Feasibility Report, Mott MacDonald & Cascade, Rev 3, August 2018
[25] Centre for Ecology and Hydrology (2018), Natural Environment Research Council, Briefing note on the impact of the Draft Water Resources Management Plan 2019, Dr Mike Bowes & Dr Alex Elliott

restoration continues to be rejected at Stage 3 of the feasibility assessment. For further information see the Raw Water Transfers Feasibility Report.

### Customer views on transfers

188. We commissioned customer research in collaboration with Severn Trent Water and United Utilities, to undertake a more detailed evaluation of customer views on transfers to ensure that if transfers were taken forward then these issues and concerns would need to be fully addressed. The research was carried out between March and May 2018 and a summary of the findings of the research, provided is set out in Figure 25 and also presented in Appendix T of the revised draft WRMP19.

**Figure 25: Customer research on transfers - summary**

## Water trading customer research

*Customers have limited knowledge about the water scarcity issue, but quickly recognise the need for long term sustainable solutions*

**Informed reaction to water scarcity:** 7 in 10 are concerned about water scarcity, particularly those in the Thames Water catchment area. Customers recognise that water scarcity is a long term issue requiring immediate nationally co-ordinated action.

Customers call for widespread education on the issue. They assume that fixing leaks will be the major priority for water companies – the preferred demand management solution for all customers irrespective of region.

**Preference for supply solutions:** Water reuse is the most preferred supply solution across all water company regions, closely followed by building new reservoirs. Whilst regional transfer is the least preferred of the three solutions, 62% rank it as their first or second choice.

Customers see sustainability (ability to provide water for the long term), environmental impact and the volume of water produced as the key evaluation criteria when choosing solutions to put in place.

*Water trading, delivered cost effectively with assurances, works for customers*

**Level of support for water trading:** Customers raise multiple concerns about water trading - the security of supply, environmental and financial impacts. Potential 'donor' customers are concerned as to the impact on their own supply, whilst Thames Water customers ask whether water will be available when needed.

Despite concerns, 74% of all customers *agree they support water trading as part of the solution - it's logical to share. Support declines for a proportion of Thames Water customers (from 80% to 70%) on being told the cost will be paid back through the bill over a long period of time – they are unable to assess fully without a figure. In donor regions, 40p is seen as better reinvested into future water resource management.

*agree is a total of those who agree strongly or slightly with the statement "I support water trading as part of the solution to the water scarcity in the UK"

**Key assurances required:** Eight assurance statements have been developed to help mitigate core areas of concern with water trading

1. Companies selling the water only do so if they can ensure they have a reliable source in the future
2. Water will only be taken when it is needed by Thames Water and the wider South-East region
3. There are plans in place to maintain new pipework
4. The 40p per donor customer is used for the improvement and upgrade of water services, with no impact on bills
5. Impact on bills for recipient regions will be kept to a minimum by spreading the cost over a long period
6. The regulator ensures water is traded at a fair price, and any cost to customers fairly reflects the level of investment made
7. External bodies will be involved in monitoring processes which could pose a risk to the environment
8. Water companies will be regulated on environmental impacts and must conduct due diligence checks

Assurances are also required about the continued improvement of demand management.

**The Welsh perspective:** Customers in Wales, whilst still concerned, have lower levels of support for water trading than observed in other potential donor regions.

- Their preference for demand and supply solutions is consistent with other water company regions – reducing leakage, water reuse and building new reservoirs are most preferred
- Wariness remains about supply slide solutions given the history of issues such as the Tryweryn Reservoir
- They are the most concerned to know that there is enough water left within 'donor' region post transfer (61% raise this as a concern compared with 54% of all customers)
- Whilst 65% support water trading as part of the solution, those in Wales have the lowest levels of support (65% *agree they support water trading compared with 73% for Severn Trent England and United Utilities).

*agree is a total of those who agree strongly or slightly with the statement "I support water trading as part of the solution to the water scarcity in the UK"

***Revisions to the draft plan***

189. A number of variants of the Severn Thames Transfer have been considered as we have developed our plans. United Utilities, Severn Trent, Welsh Water and the Canal and River Trust have provided options to free-up water in the River Severn catchment. Thames Water has considered these options for transferring water from the River Severn and River Wye to the River Thames.

190. In appraising options to meet its own needs, and the needs of other companies in the South East, Thames Water has selected a Severn Thames Transfer as part of its long term preferred plan. This includes, from 2083 onwards:

- 300 Ml/d pipeline transfer between Deerhurst on the River Severn and Culham on the River Thames, including treatment for invasive non-native species
- 90 Ml/d of support from Vyrnwy reservoir provided by United Utilities, 60 Ml/d of which would be released into tributaries of the Upper Severn and 30 Ml/d would be provided to Severn Trent Water to offset their abstractions further downstream
- 35 Ml/d of support from Severn Trent's Netheridge sewerage treatment works in Gloucestershire

191. Importantly, the transfer is implemented after the South East Strategic Reservoir Option. The reservoir provides an important storage and transfer hub for the South East region and as such is able to mitigate many of the risks associated with the transfer. In particular the higher cost, water availability issues and water quality concerns.

192. Thames Water also considered a number of scenarios. The Severn Thames transfer is called on under some scenarios tested. The earliest the transfer is required in these scenarios is 2039. The scenarios select a range of different support options up to 250 Ml/d in total. The 250 Ml/d support comprises of 125 Ml/d from Vyrnwy reservoir and 125 Ml/d from Severn Trent options.

193. Throughout 2015-2020 there has been an extensive programme of work undertaken and engagement with interested stakeholders and regulators on the Severn Thames Transfer option. We are committed to fully understanding the viability of the option and intend to build on this work. In the next 5 years, in partnership with the other companies, we will undertake appropriate technical, environmental and governance assessments and endeavour to address fully the concerns raised by stakeholders, interested parties and customers. This is presented in Appendix J of the Statement of Response. The work package will include:

- understanding and quantifying the magnitude of the identified water losses that could occur during transfer;
- identifying the changes that would be required to the regulation of the River Severn to ensure water is available for transfer when required and that the Severn Estuary Special Area of Conservation is not detrimentally affected by the increased upstream abstraction;
- carrying out further environmental investigations of and survey requirements for the River Severn flow augmentation options (Vyrnwy reservoir and Minworth sewage treatment works);
- understanding the water quality issues associated with how River Severn algae behave when transferred into the River Thames;

- conducting environmental studies of a number of supporting options, including a screening phase and more detailed investigations at a smaller number of sites.
- carrying out more detailed engineering assessments of the scope and costs of the supporting options, supported by multi-discipline site based investigations
- making an assessment of whether changes to the magnitude of timing of River Severn support would affect water levels at Vyrnwy reservoir and the environmental effects of any changes to water level; and
- involving leadership and coordination of the work on the transfer scheme across the various participants, ensuring effective governance arrangements are in place, and engagement with multiple stakeholders and interested parties is effective.

## *South East strategic reservoir option*

### *Consultee issues*

194. There was both strong support and strong local opposition to the proposals for a reservoir in South West Oxfordshire.

195. Opponents to the reservoir included local landowners, local campaign groups (GARD, the Wantage and Grove Campaign Group, Oxfordshire CPRE and local residents and other individuals. In addition, the Vale of White Horse District Council and local Parish Councils submitted representations opposing the proposed reservoir. A summary of the main concerns is set out below:

- The Group Against Reservoir Development (GARD), a campaign group set up by individuals living locally who oppose the reservoir development, made three main arguments in their detailed response: future water demands and deficits had been overstated; other options for reducing the deficit had been understated; and the negative impacts of the reservoir had also been understated.
- Some local residents felt particularly strongly about the impact on the local environment and local people e.g. planning blight beforehand, disruption during construction, visual impact and habitats lost afterwards.
- The Vale of White Horse District Council and some of the local Parish Councils challenged whether the proposed reservoir is the most appropriate solution to address the future water needs of the South-East of England.
- The Cotswold Canals Trust highlighted the strong local objections to the reservoir that would probably delay its delivery in contrast to the support for a water transfer via the Cotswold Canals that could potentially make delivery more straightforward.
- Historic England and Natural England raised concerns about the visual impact on landscape and cultural heritage.

196. Underlying some of the responses from opponents of the reservoir was a sense of mistrust. They suspected that Thames Water's assessment was biased towards this option and against others; and that the draft WRMP19 had been developed in a way that inevitably included the reservoir. GARD argued that the benefits of other water supply options had been underplayed and the negative impacts of the reservoir had been underestimated.

197. Opponents living locally generally argued that the reservoir should be removed from the preferred plan. A few opponents suggested delaying the decision until it was clear whether it would be needed, depending on whether the expected water supply /demand deficit emerged. Some suggested alternative approaches would be preferable and needed further examination e.g. more leakage reduction and/or River Severn-Thames water transfer via the Cotswold Canals.

198. Conversely, there was also broad support for the reservoir from river and angling related organisations, some local authorities including the GLA and South Oxfordshire District Council, stakeholder organisations such as Thames Valley Chamber of Commerce, several MPs and customers. Feedback from customers in the research sessions and from the online community clearly expressed support for the reservoir as their preferred supply option. It was recognised that a reservoir would likely be of strategic importance to the wider South East, helping to meet the water supply needs of other water companies in addition to Thames Water. A reservoir would make an important contribution to supporting the water needs of Oxfordshire's growing population, and provide wider benefits including conservation and recreational benefits.

199. Respondents' focused on three main benefits: the reservoir's role in helping to meet future supply needs, increasing resilience to drought and its role in providing environmental resilience and protecting chalk streams from over-abstraction. Other benefits highlighted included opportunities for conservation, recreation and leisure and the need to develop the detailed design in consultation with key stakeholders and local residents.

200. Many supporters urged that the reservoir be built earlier than planned. There was frustration that no action had been taken despite discussion over many years and stakeholders argued that a delay could result in more environmental damage and less security of water supply.

***Our consideration***

201. In developing the draft WRMP19 we completed detailed work to review and assess a large number of options, to both manage demand for water and to provide additional water supply. We have set ambitious targets to reduce leakage and manage the demand for water, and we have assessed a range of options to provide new water resources including transfer of water from the River Severn to the River Thames, desalination, water reuse and the construction of new reservoir storage capacity. The options were assessed on a comparable basis and without bias. The reservoir has been included in our revised draft preferred plan as it is the most cost effective strategic resource, as well as providing resilience to drought and opportunities for wider benefits to the local community and the environment. It is also the water supply option that is most preferred by our customers.

202. During the preparation and development of the draft WRMP19 we have worked collaboratively with the Water Resources in the South East Group (WRSE), an alliance of the six South East water companies, the Environment Agency, Ofwat, the Consumer Council for Water, Natural England and Defra, to identify opportunities for shared solutions. Since consulting on their draft plans, a number of the WRSE companies have changed the timing of their supply requirement from the regional strategic water resource scheme for the South East. Most notably Affinity Water has confirmed a larger requirement (100 Ml/d) earlier in the planning period (2037), in order to deliver improved drought resilience and environmental

improvements identified by stakeholders. We have identified the new reservoir on the River Thames in South West Oxfordshire, shared with Affinity Water, as the best value option to meet our and their customers' long term best value supply/demand needs. As part of our revised draft WRMP19 we will work with Affinity Water on the initial planning, engagement and design, with the reservoir coming into use by 2037.

203. The appropriateness of the location of the reservoir was challenged and proposal for a series of smaller reservoirs strategically located throughout the region was proposed as an alternative. The site located to the south west of Abingdon was chosen following an assessment of 55 potential reservoir sites[26]. The potential sites were identified on the basis of being within the River Thames catchment, located on impermeable strata, avoiding areas of major built development and located near to the River Thames upstream of Windsor, or a major tributary river that flows into the River Thames upstream of Windsor. The sites were assessed against a range of engineering, planning, socio-economic and environmental criteria. Different sized reservoir options, ranging from 30 million $m^3$ capacity to 150 million $m^3$ capacity were considered for each location dependent on the extent of the site. If the option to develop the reservoir is progressed more detailed work will be required to be undertaken to develop a final design and to support a Development Order Consent application. Further engagement would be held with stakeholders during this process.

204. There were a number of concerns raised about the local environmental and social impacts of the reservoir including the lack of resilience to a severe drought and the lack of transparency in the assessment of the option costs. The issues arising are addressed below.

205. **Cost:** We have undertaken analysis of the cost of the reservoir along with other potential supply solutions on an equal and consistent basis. Option comparisons at feasibility, fine screening and programme appraisal stages included consideration of the Average Incremental Cost (AIC), which is a ratio of the whole life cost of an option (including construction costs and operating costs over the lifetime of the plan) set against the option yield. Costs were determined using a standard industry methodology and Thames Water cost models. In this way option comparisons relating to cost were normalised and assessed the whole life costs of the options.

206. **Environmental impact:** We have assessed all the options through the Strategic Environmental Assessment process which is an appropriate level of assessment for a strategic plan. Where the reservoir and/or alternative schemes are progressed, further environmental and social assessment work will be undertaken following dialogue with regulatory bodies, planning authorities, interested stakeholders and local communities.

207. **Local nuisance and increased traffic:** The proposed reservoir is a major infrastructure project and its development would need to be undertaken with consideration given to the amenities of the local community. It is likely that there would be an increase in traffic on roads during its construction however there will be extensive engagement with stakeholders, including local residents and the relevant highway and railway authorities to produce a construction traffic management plan that minimised the adverse impacts of construction traffic on the local road network. Options would include the construction of a dedicated access road and the creation of capacity for the import and export of material via the rail network.

[26] Reservoir Feasibility Report, Mott MacDonald, 2018

208. **Local flooding:** A small area of the reservoir will be built on the floodplain, primarily that associated with Cow Common Brook, a tributary of the River Ock. The reservoir option includes substantial flood-zone re-provision to replace that lost to the reservoir development. We will work with the Environment Agency, Oxfordshire County Council and other flooding stakeholders to ensure that the development does not lead to an increase in flood risk.

209. **Landscape and visual impact:** Whilst we recognise that local landscape elements would be lost during construction, sensitive design and landscape treatment around the new reservoir have the potential to integrate the reservoir into the wider landscape through ground re-profiling, extensive planting, forming new hedgerow and woodland links and grassland. New opportunities could be created for improved access, recreation and amenity provision across the area of the reservoir. If the reservoir scheme is progressed, there would be more detailed assessment work carried out to support the detailed design. Mitigation measures will be developed in close dialogue with regulatory bodies, planning authorities, interested stakeholders and local communities and further engagement with stakeholders will be undertaken as part of any development of this option.

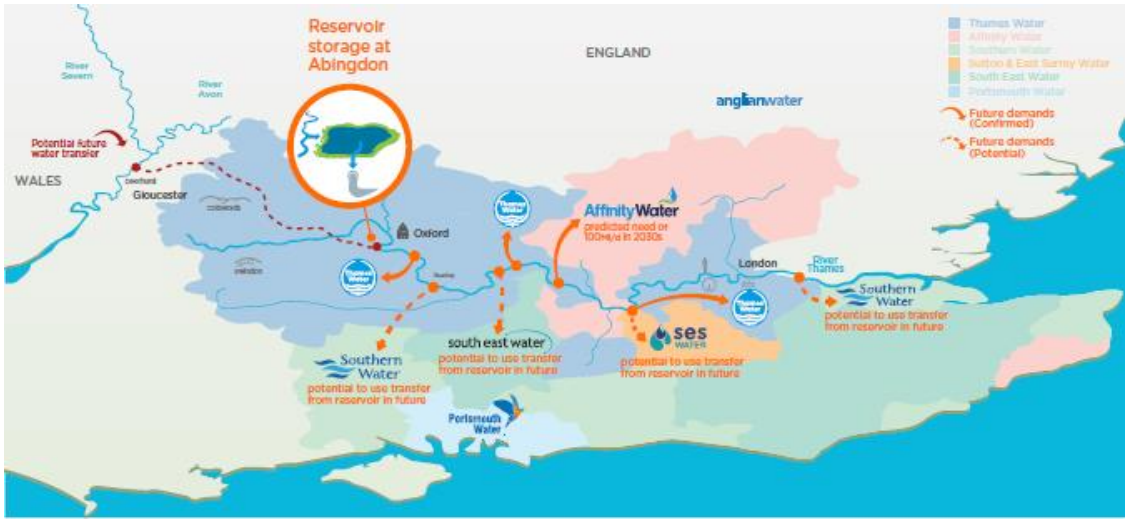
210. **Resilience to drought:** The reservoir has been subjected to rigorous analysis using best practice for long term water resource planning, including the use of stochastically generated extreme events to supplement the historical record. This has shown that it is resilient to multi-year droughts with a 3% reduction in deployable output. GARD challenged the methodology to assess the resilience to drought. In response to their comments, we agreed a revised methodology with stakeholders and repeated the analysis. The output of this additional exercise confirmed the original analysis that the reservoir is resilient to severe drought. This work is presented in detail in Thames Water's Fine Screening Report September 2018[27] and the outputs of the analysis have been included in Section 7 of the revised draft WRMP19.

***Revisions to the draft plan***

211. The reservoir is included in Thames Water's revised draft WRMP19 from 2037. It will be developed in conjunction with Affinity Water and will improve significantly regional resilience to drought and the connectivity of water supply in the South East. Figure 26 illustrates the reservoirs pivotal role as a regional storage and transfer hub for the South East region.

[27] Thames Water WRMP19 Resource Options Fine Screening Report, September 2018, Appendix J Stochastic analysis of Upper Thames reservoir

**Figure 26: South East Strategic Reservoir option**




212. We recognise the concerns of the local community and if the scheme is confirmed as proposed in the preferred plan, there will be extensive engagement with the local community on the design and construction of the reservoir to ensure the project is delivered with consideration given to the preservation, wherever practicable, of the amenities of the local communities affected.

## *Assessment of environmental effects*

### *Consultee issues*

213. There were a number of comments on the adequacy of the environmental assessment completed as well as more detailed comments on how the Strategic Environmental Assessment (SEA) was undertaken and reported, and specific comments on the Water Framework Directive (WFD) assessment and the Habitats Regulation Assessment (HRA).

### *Our consideration*

#### Adequacy of the environmental assessment

214. The Vale of White Horse District Council (VoWH DC) suggested that the assessments completed did not identify and assess the potential environmental implications of schemes, specifically the reservoir, in sufficient detail e.g. landscape impact, biodiversity, heritage impact, highways, flood risk; and that the plan should take into account the design of each option and its likely impacts. The SEA provides the overarching structure of the assessment approach and has been integrated with the parallel statutory assessment requirements for the EU Habitats Directive[1] and EU Water Framework Directive[2], the results of which inform the SEA. The scope of the SEA assessment and results from the SEA assessment of option

[1] Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora
[2] EU Water Framework Directive, October 2000

elements have been subject to consultation with stakeholders prior to the submission of the draft WRMP19. Regard has been given to comments received on the SEA assessment of the draft WRMP19. We consider that the level of assessment completed is appropriate for an SEA of a strategic, long-term plan to 2100; and that it is important to ensure all schemes are assessed equally. If the reservoir or other schemes are progressed to the planning stage, there would be more detailed assessment work to support the detailed design as well as any subsequent planning application, and further engagement with the VoWH DC and other stakeholders would be undertaken during this period.

### Strategic Environmental Assessment (SEA)

215. A number of comments were raised by the Environment Agency, Natural Resources Wales (NRW), Natural England, and Historic England on the SEA around inconsistencies in the assessment, the completeness of the assessment, and mitigation and monitoring plans. Stakeholders also made comments on the methodology, topic assessments which were challenged to be inconsistent and sometimes subjective, and the output of assessments of specific schemes.

216. We have reviewed all the comments made in relation to the SEA. We have engaged with regulators and statutory bodies to discuss their comments to ensure we understood the comments and addressed these fully in the revisions to the revised draft plan. These are reported in the schedules of comments (Appendix A to E). We have made amendments and included additional text in Section 9 and the Environmental Report (Appendix B) of the revised draft WRMP19 to address the comments.

217. We held a stakeholder forum[3] during the consultation period which included discussion on the environmental assessments covering the methodology used, the assessment outputs, and the use of these in determining the content of the preferred programme. GARD challenged the assessments in terms of completeness and objectivity. The SEA assessments have been completed on the best available information, and uncertainties have been taken into account with respect to each SEA objective. The approach to assessing the certainty of effects was discussed with regulators and stakeholders at the Water Resources Forum and Technical meetings prior to its application, and the methodology was formally consulted upon with statutory bodies, stakeholders and the public as part of the SEA Scoping Report consultation in summer 2016. The SEA assessment methodology and scope has been subject to earlier consultation as have the results from earlier SEA assessments of the option elements. The SEA methodology, its application to the draft WRMP19 and wider environmental assessment work has also been reviewed by the SEA expert on the independent Expert Panel, Dr Bill Sheate.

### Habitats Regulations Assessment (HRA)

218. A number of comments have been made on the sufficiency of information in relation to the evidence used to support the assessment conclusions and the efficacy of proposed mitigation

[3] Water resources stakeholder forum, March 2018

measures, as well as the need to consider the implications of the recent (April 2018) ruling of European Court of Justice[4].

219. We have amended the HRA report to address the comments made including providing objective evidence used in the screening assessments. We have revisited the screening assessments in light of the recent judgment of the EU Court of Justice on the need to exclude mitigation measures from the HRA Stage 1 screening assessment. This has resulted in several HRA Stage 1 Appropriate Assessments being produced for options where mitigation measures are required to avoid adverse effects on a European site.

### Water Framework Directive (WFD)

220. There were a number of comments in relation to the WFD assessments. We have updated the WFD Compliance Assessment for schemes in response to representations received from NRW and the Environment Agency, e.g. the potential for cumulative effects of multiple options on WFD compliance in respect of the River Thames has been included as part of the WFD compliance assessment report and updated assessments in respect of the Vyrnwy flow support option element following dialogue with NRW. Detailed responses to each of the comments raised by NRW and the EA are provided in Appendix A.

### Natural capital and net gain in biodiversity

221. There were several comments on the assessment of natural capital and consideration given to how the plan will deliver a net gain in biodiversity. We can confirm that we did consider the use of a Natural Capital Accounting (NCA) to inform the development of the draft WRMP19 and completed a study to examine the approach; this is presented in Section 9 of the revised draft WRMP19. In summary, we completed a pilot of the use of NCA and associated ecosystem services assessment for application to water resource planning and our wider business planning processes. This concluded that the available methods and evidence are not sufficiently robust to apply them to all of the options considered in the WRMP19 on a consistent basis to enable objective comparison to inform decision-making. We have however considered potential effects on natural capital in a qualitative manner in the SEA. We are involved with ongoing water industry research to develop robust methodologies for applying Natural Capital (NC) approaches to our long-term plans, and once available we will work with regulators and other stakeholders to embed them into our future planning activities.

222. We assessed each option, and the programme as a whole, against specific biodiversity and NC objectives. We have considered the potential risks to the environment in determining our preferred WRMP strategy, with the aim of avoiding adverse effects wherever possible, minimising effects and maximising benefits. We have updated our revised draft WRMP19 to explain the benefits that are expected to be delivered as a result of implementing it and measures aimed at delivering overall net biodiversity and net environmental gain. We are also proposing a regulatory Performance Commitment as part of the 2019 Price Review process to achieving a net gain in biodiversity at 253 Sites of Biodiversity Interest (SBIs) plus any net change from additional land where specific biodiversity offsetting has been implemented. We are committed to increase the total number of biodiversity units on our SBIs and offsetting

[4] C-323/17 (*People Over Wind*).

sites by 5% during the 5 year period from 2020 to 2025, and we expect to continue this commitment over the longer term, subject to customer support.

223. We have updated the revised draft WRMP19 to explain the benefits that are expected to arise as a result of implementing the plan and measures aimed at delivering overall net environmental gain. In particular, as part of our revised draft WRMP19, we have included a programme of discretionary measures (i.e. over and above statutory obligations) to improve the aquatic environment of a range of chalk streams by reducing abstraction from existing sources that may affect the environment of these streams. This will be facilitated by the development of a strategic scheme to provide sufficient headroom of reliable water supplies to allow for the reductions in abstraction from the chalk streams and vulnerable water courses. Several new pipelines will also be required to ensure supplies to our customers can still be maintained.

224. We intend to continue to work with stakeholders on the detailed design of the schemes to provide net gain for biodiversity and the environment.

### Environmental metrics

225. GARD raised concerns about the use of metrics in decision making and the scoring grading assigned to the environmental metrics.

226. The environmental metric grading is based on the SEA matrices for option elements solely for the purposes of ensuring that the environmental impacts are incorporated in the computer modelling of programmes and scheduling. The grades are relative and the scale needs to be seen comparatively on a scale of 0 to 10. Furthermore, negative effects and positive benefits are explicitly kept separate and as such any identified positives are not regarded as balances to negative effects. The SEA assessments undertaken of the subsequent options and shortlisted programmes do not consider or generate numerical values with a detailed qualitative assessment being undertaken against agreed SEA objectives. Importantly, it is the detailed SEA (and HRA and WFD assessments) that inform decision-making on the shortlisting of alternative programmes and the development of the preferred programme.

#### *Revisions to the draft plan*

227. We have updated Section 9 of the revised draft WRMP19 and the SEA, HRA and WFD assessments as specified in the schedules of representations (Appendices A,C, D and F) to respond to the comments raised on the assessments.

## *Planning for the wider South East region*

#### *Consultee issues*

228. Overall stakeholders supported the work of Water Resources in the South East Group and the objective to co-ordinate water resource planning at a regional level. Whilst recognising that progress had been made, several stakeholders urged Thames Water to do more. Ofwat expressed disappointment that the draft plans in the South East appeared to miss the opportunity to secure the long term resilience of the region and asked Thames Water, and the other water companies, to work together to address challenges in the South East. There were

also calls for more regional planning in the future, for instance, it was suggested that a statutory body should be set up to take responsibility for a regional water plan.

***Our consideration***

229. We have worked closely with the Water Resources in the South East Group throughout the development of the draft WRMP and continue to work with WRSE in the refinement of plans.

230. In July 2018 Affinity Water confirmed its requirement for 100 Ml/d of raw water in the mid-2030s; this confirmed the requirement for the development of a Water Resources in the South East (WRSE) strategic water resource scheme, the reservoir in Oxfordshire from 2037.

231. As well as including the water supply requirement from Affinity Water in our revised draft WRMP19 we have also examined scenarios for an increased WRSE need, reflecting the potential future requirements of Southern Water, South East Water and Sutton and East Surrey Water. Ongoing liaison with these companies has confirmed that they do not currently have any requirement for supply, with Southern Water instead including a desalination plant in its revised draft WRMP19 to secure supply to its western area, however it has asked us to consider a need for water as a scenario test.

232. The future role of WRSE in driving the development of a regional water supply strategy will be significantly enhanced for WRMP24. This is supported by regulators and government.

***Revisions to the draft plan***

233. The new reservoir is included in our revised draft WRMP19 from 2037. It will be developed in conjunction with Affinity Water and would significantly improve regional resilience to extreme events and connectivity.

## *Deciding on the preferred programme*

***Consultee issues***

234. There were a number of comments on the programme appraisal.

235. Regulators, stakeholders and interested parties generally welcomed TW's decision to use an 80 year planning period. GARD, who were critical of most aspects of the programme appraisal, nevertheless welcomed the long planning period. Ofwat queried the impact of the planning period on the choice of options in the programme.

236. Consultees were similarly supportive of Thames Water's approach to the regional context. They generally agreed that Thames Water should take the needs of neighbouring water companies into account in their programme appraisal. They argued that a regional approach was critical given the water supply challenges faced by the South East of England.

237. There was also positive feedback, including from GARD, about Thames Water's decision to use a 'long term best value' rather than 'least cost' approach to water resource management, and to consider a range of relevant factors in their programme appraisal. Nevertheless, some consultees had queries and criticisms about how the various metrics had been employed in programme appraisal.

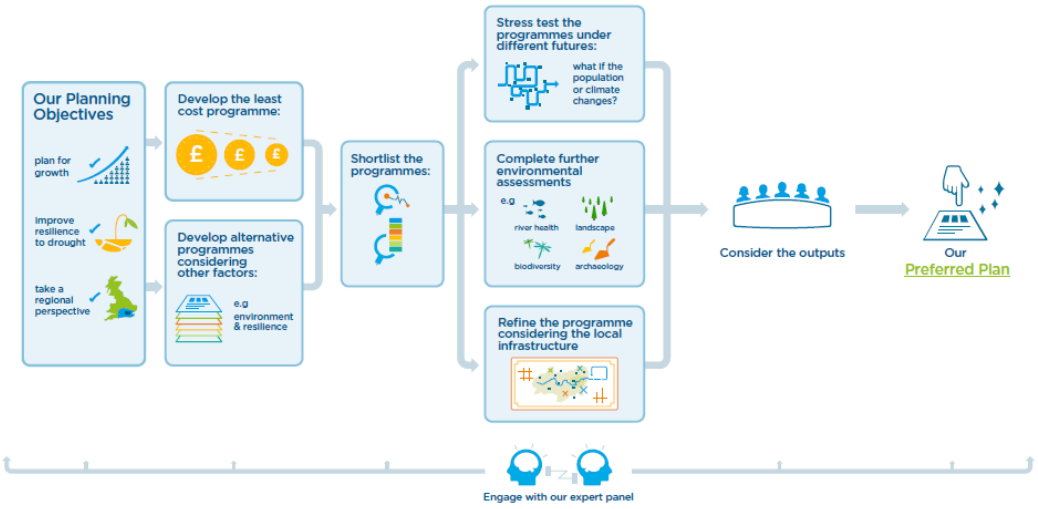
238. There were a number of comments on the accessibility and transparency of the decision making process and several consultees emphasised the need to improve the transparency of the programme appraisal. There was some positive feedback about having an independent expert panel involved in reviewing the plan making process; but also comments and queries about the precise role and contribution of the Expert Panel.

239. There were also comments on how robust the plan would be under different future conditions. It was suggested that a more detailed and transparent adaptability analysis was needed.

***Our consideration***

240. **Transparency in decision making**: Our approach to programme appraisal is illustrated in Figure 27. The methodology and processes used for programme appraisal are largely unchanged from the draft WRMP19. We have reviewed and revised some of the metrics used, we have incorporated the system simulation modelling and adaptability analysis that we were unable to complete in time for the publication of the draft WRMP19. We have revised the programme appraisal itself due to updates made to our supply demand forecasts, the requirements for water from other water companies in the South East and the latest information available on the demand management and resource options. This is presented in substantial detail in the revised version of Section 10 in the revised draft WRMP19.

**Figure 27: Our approach to programme appraisal**




241. **Best value planning and the use of metrics**: The planning guideline[28] presents clear guidance for water companies to move from least cost planning towards a long term best value plan. We developed a suite of metrics to incorporate a wide range of factors, alongside cost, in the process of decision making including the preferences of our customers, environmental benefits and disbenefits, resilience and deliverability. Since the publication of

[28] Water Resources Planning Guideline, Defra, EA, Ofwat, NRW, April 2017

the draft WRMP19 we have revised the content of three of the eight metrics namely, deliverability, resilience and intergenerational equity to aid clarity; and we presented these to the Environment Agency and to stakeholders and interested parties. A summary of the metrics used in programme appraisal is presented in Figure 28.

**Figure 28: Metrics used in programme appraisal**

| Metric | Current Grade | Adapted to Units |
|---|---|---|
| Cost | Net Present Value (£bn) | Revenue requirement (£bn) |
| Environmental impacts | Grade (sum of grades of all options/ elements selected) | |
| Resilience | Grade 0-10 relating to number of failures due to 14 hazard events | Probability of level 4 failure occurring during 80 year horizon (%) |
| Deliverability | Grade 0-10 relating to risk of cost increase, time delay or lower yield upon construction | Probability of deficit due to program risk across 80 year planning horizon (%) |
| Intergenerational Equity | 1% discounted cost (Equitable discount rate) (£bn) | Average cost of water for current vs future generation (%) |
| Preference | Grade 0-10 of customer satisfaction with programme | Percent customer satisfaction with proposed programme (%) |
| Adaptability | • Remaining contingency across all futures;<br>• Cost range across different futures;<br>• Probability of failures across all futures | |

242. **Modelling tools**: We have taken the opportunity to incorporate system simulation modelling (IRAS – MCS) into our revised draft WRMP19. This is able to simulate the performance of our supply system and optimise potential solutions to the planning problem. It is especially useful in being able to provide a more detailed assessment of drought resilience. We have used the model to produce alternative solutions across a large range of drought return periods. This has enabled us to sense check the combinations of options being selected by EBSD + and IRAS-MCS and allowed us to see how the portfolios of options change with differing levels of drought resilience

243. **Performance testing**: There were a number of comments around how robust the plan is to a range of hazards and different future conditions. We have extended the performance stress testing to ensure our plan provides a robust and resilient solution to the supply / demand deficit planning problem. This includes testing against a wide variety of uncertain futures (adaptive planning scenarios related to changing demand, resource availability linked to climate change and the regional water requirements of other WRSE companies), stress testing or 'What-if' analysis as well as allowing for headroom to address the potential uncertainty in demand management savings. In the draft WRMP19 we tested 5 scenarios, in response to comments from stakeholders and interested parties and we have expanded this to over 30 different runs covering 16 uncertainties in the revised draft WRMP19. A summary of the extended list of “What if” scenarios is presented in Table 7.

**Table 7: A summary of the "What if" scenarios used to revise the draft plan**

| Uncertainty | Topic | Comment |
|---|---|---|
| Timing of 1:200 drought resilience | Resilience | Timing only |
| 1:500 drought resilience in 2040 | Resilience | +130 Ml/d |
| Reservoir Outage/Replacement | Resilience | +108 Ml/d |
| Remove outages >90 days from record | Supply change | -19Ml/d |
| Reduction in contribution from the West Berks Groundwater Scheme (WBGWS) | Supply change | +40 Ml/d (LON); +27 Ml/d (SWOX) |
| Shortened Planning Periods | Economics | 50, 55, 60 years |
| Alternative use of existing bulk supply (Affinity, FG) | Supply change/WRSE | Varies +15/-10 Ml/d |
| Alternative new WRSE transfers (Affinity, Timing and Volume) | WRSE | 2027, 2035, 50 Ml/d, Phased reduction |
| Potential new WRSE transfers (Other companies) | WRSE | 50-185 Ml/d |
| No Reservoir options available for selection | Supply option change | Remove Reservoir options |
| WINEP – WFD No Deterioration | Environmental | a) 32 Ml/d<br>b) 107 Ml/d |
| Reduction in abstraction from Chalk Streams | Environmental | a) 34 Ml/d<br>b) 77 Ml/d |
| Population Uncertainty | Demand forecast | +100, -250 Ml/d |
| PCC Uncertainty | Demand forecast | +210, -380 Ml/d |
| Leakage uncertainty | Demand forecast | +125 Ml/d |
| Climate change (2050s instead of 2080s) | Climate change | Timing only |

244. **Independent expert scrutiny**: We have worked closely with the independent Expert Panel throughout the development and revisions to the draft WRMP19. We asked the Panel to prepare a note to explain its role in reviewing and challenging our processes to respond to comments made by consultees. This is provided in a separate report that has been shared with stakeholders[29] and interested parties and is included in Appendix Y of the revised draft WRMP19.

245. **Balancing demand and supply solutions**: In respect of comments on the balance of measures to manage demand for water and developing new water resources, specifically taking into account risks around deliverability and the need for additional resilience, we have explained our approach in Section 10 of the revised draft WRMP19. This includes an evaluation of the sustainable economic level of demand management (SELDM), which is the point at which the costs of demand management and resource development are in balance. In going beyond SELDM, the cost of demand management will be greater than that of resource development.

[29] Water Resources Forum, August 2018

***Revisions to the draft plan***

246. We have revised Section 10 of our draft plaWRMP19 providing more information on the approach taken to determine the best value plan and also to present the re-run of the programme appraisal. We have stress tested the preferred plan using an extended list of "What if" scenarios and by employing a full adaptive planning approach.

# F. Our revised draft plan

247. We have taken account of the representations received to the public consultation on our draft WRMP19 and the availability of new information, and made appropriate revisions to our draft WRMP19. Section 11 of the revised draft WRMP19 sets out our preferred plan in detail. In this section we provide a summary of our revised draft WRMP19.

248. Our plan has been developed to achieve the following planning objectives:

- a secure and sustainable supply of water for our customers over the next 80 years
- improved drought resilience in our area to 1:200 years from 2030
- support for a regional approach to planning water resources.

249. The foundation of our revised draft WRMP19 is the effective use of resources. This includes being even more ambitious in our plans to cut leakage. We plan to reduce leakage by 15%, approximately 100 Ml/d, by 2025 and to halve leakage by 2050. This is in line with feedback from our customers and the recommendations of the National Infrastructure Commission[30] and Government's aspirations[31.] We will also continue to roll out smart meters to help customers use less water and provide the information we need to effectively target leaks, installing smart meters at over 70% of household properties by 2030 in London and over 90% of individual household meter penetration (including voids) by the mid-2030s in Thames Valley. We will also continue an ambitious programme of water efficiency activity encouraging household customers and businesses to use water efficiently.

250. Overall the demand management programme will achieve a reduction in per capita water use in London of 124 l/h/d at 2044/45 and 121 l/h/d by 2100. In Thames Valley, where consumption is more typical of that found elsewhere in England, the equivalent figures are 112 l/h/d and 101 l/h/d respectively. Average household consumption across our supply area with forecast regional consumption of 121 l/h/d in 2045 and 117 l/h/d at 2100.

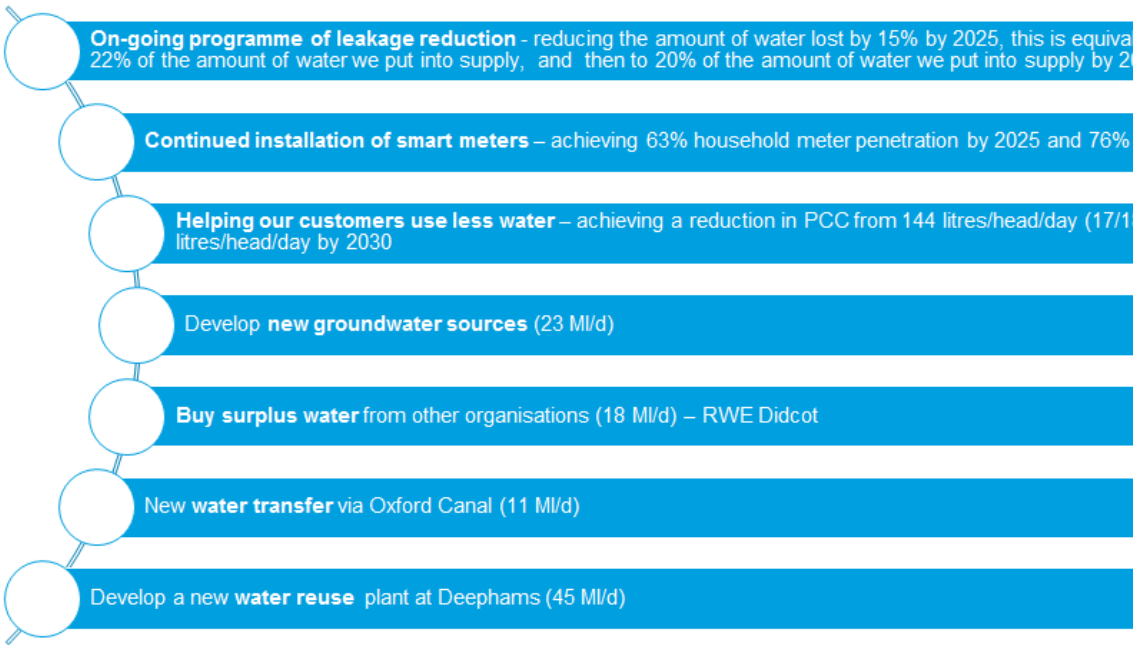
[30] National infrastructure Commission, Preparing for a drier future, April 2018
[31] HM Government 2018 A Green Future: Our 25 Year Plan to Improve the Environment

251. Measures to manage the demand for water will not be enough, however, to address the water resource supply / demand deficit on their own; and we also, therefore, plan the development of new water resources as follows:.

- Up to 2030 – develop innovative groundwater solutions, a new water reuse plant at Deephams near Edmonton, North East London; extend an existing commercial agreement to buy water from RWE Npower and a water transfer using the Oxford Canal in partnership with the Canal and River Trust.
- Late 2030s – develop a new reservoir in South West Oxfordshire in partnership with Affinity Water. A reservoir is the preferred solution to maintain the supply demand balance and to facilitate greater sharing of resources across the South East.
- End of the planning period, from 2080 – develop water transfers from other water companies in the Midlands and the North West via the River Severn.

252. A summary of the revised draft WRMP19 over the next 10 years is presented in Figure 29.

**Figure 29: Our revised draft plan 2020 to 2030**




253. We believe that our revised draft WRMP19 is the long term best value plan for our area for the planning period to 2100. It will:

- Ensure the efficient use of water resources - The foundation of our plan is to ensure we use the resources that we have efficiently and effectively by reducing the amount of water lost through leaks in pipes, installing smart meters and helping our customers to use water wisely.
- Support growth - There will be nearly 12 million people living in our supply area in 2045 and nearly 14 million by 2100. Our plan will ensure we can provide a secure and sustainable water supply to all our customers.

- Protect the environment - Our plan will help to protect the environment through reductions in abstractions considered to be damaging the environment, by providing the flexibility to reduce abstractions further from vulnerable water courses and by providing greater environmental resilience across the whole region.
- Provide economic stability: Severe water use restrictions in London alone could cost the economy more than £300 million a day. Our revised draft plan will ensure our water supplies are resilient to a severe drought of 1 in 200 year frequency by 2030.
- Deliver best value for our customers – The decisions we make today will affect the water supply we can provide to our customers in the future. We have taken a long term best value approach planning over 80 years to ensure we are bring forward the optimum combination of solutions to ensure a resilient and sustainable supply of water in our area.

254. We have tested the adaptability of our preferred programme against a wide range of uncertain futures and 'What If' scenarios which has helped us identify the potential changes we would need to make as part of an adaptive planning process. Every 5 years we will review our plan to make sure we are still on the right course.

# G. Next steps

255. We have made a number of changes to our draft WRMP19 in response to consultation representations and the availability of new information. The main changes, namely:

- A revised forecast of population growth from 2045 using the latest ONS 2016 based information
- The introduction of ambitious targets to reduce leakage by 15% (~100 Ml/d) by 2025 and to halve leakage by 2050
- The removal of Teddington direct river abstraction scheme from the preferred plan in response to concerns raised by the Environment Agency and others. To compensate for the loss of this scheme the revised draft preferred plan includes additional activity to manage demand and alternative resource schemes including innovative groundwater development in London, a reuse plant at Deephams, near Edmonton, in North East London and earlier delivery of the Oxford Canal raw water transfer
- The timing of the South East strategic reservoir has moved forward from 2043 to 2037 to address an earlier requirement for raw water from Affinity Water; the scheme will be jointly promoted and will improve the resilience of water supply in the South East
- Allowances have been included for reductions in existing groundwater and surface water abstractions which are perceived to have a detrimental environmental impact on vulnerable chalk streams and water courses. The timing is facilitated by the delivery of the South East strategic reservoir in 2037.
- Towards the end of the planning period, the supported Severn Thames Transfer option has been included in the preferred plan from the 2080s.

256. We intend to continue to work constructively with stakeholders and interested parties in the refinement of our draft WRMP19 and to seek feedback upon the changes and revisions made.

257. We will invite further representations on the changes and revisions made to the draft WRMP19 commencing in early October 2018 for an 8 week consultation period. The exact dates will be confirmed following approval from Defra for the publication of our revised draft WRMP19.

258. In early 2019 we will produce an addendum to the revised draft WRMP19 setting out the consideration that we have given to representations received to this second round of consultation and any changes or revisions made to the revised draft WRMP19 as a result of that consideration. Where no such changes or revisions are made, the addendum shall explain why that is the case.

# Annex 1: List of consultees

259. An email was sent to around 300 stakeholder organisations, 450 developers and over 250 individuals. The mailing list comprised statutory consultees; retailers; developers; stakeholder organisations and individuals who had expressed an interest in the public consultation on WRMP19 and had provided their email address; and respondents to the WRMP14 public consultation. Note a number of emails sent to individuals were returned as the email address was no longer recognised.

260. The following list comprises the stakeholder organisations and retailers who were contacted by email. Individuals have not been included in the list.

- Abingdon on Thames Town Council
- Action for the River Kennet (ARK)
- Advanced Demand Side Management Ltd
- Affinity for Business
- Affinity Water
- Albion Water
- Amwell Magna Loop
- Anglian Water
- Anglian Water Business (National)
- Anglian Water Services Ltd
- Angling Trust
- Ardington Parish Council
- Ash Catchment Partnership
- Aylesbury District Council
- Basingstoke and Deane Borough Council
- Basingstoke Canal Authority
- Berks, Bucks, and Oxon Wildlife Trust
- Beane and Mimram Partnership and all other rivers partnerships in the catchment
- Borough of Broxbourne
- Bracknell Forest Borough Council
- Brent Catchment Partnership
- Bristol Water
- Business Stream
- BU-UK
- BWTUC
- Cambrian Utilities
- Canal & River Trust
- Castle Water
- Catchment Partnership in London
- Customer Challenge Group
- Centre for Ecology and Hydrology
- Cherwell Catchment Group
- Cherwell District Council

- Chiltern District Council
- Chilterns Chalk Stream Project
- City of London Corporation
- City of Westminster
- Clear Business Water
- Colne Valley Fisheries Consultative
- Consumer Council for Water
- Cotswold Canals Trust
- Cotswold District Council
- Cotswold Rivers Trust
- Cotswolds AONB
- CPRE
- CPRE Oxfordshire
- Crane Valley Partnership
- Cray & Darent Catchment Improvement Group
- Creekside Discovery Centre
- Dacorum Borough Council
- Dartford Borough Council
- Department for Environment, Food and Rural Affairs
- Drayton Parish Council
- DWI
- Dŵr Cymru Welsh Water
- East Hanney Parish Council
- East Hendred Parish Council
- East Hertfordshire District Council
- Elmbridge Borough Council
- Environment Agency
- Epping Forest District Council
- Epsom and Ewell Borough Council
- Essex and Suffolk Water
- Evenlode Catchment Partnership
- Everflow Limited
- Fresh Water Habitats Trust
- Frilford Parish Council
- Fyfield and Tubney Parish Council
- Garford Parish Council
- Gloucestershire Wildlife Trust
- Greater London Authority(GLA)
- Greene King Brewing
- Greenwich Tertiaries Operational Catchment
- Group Against Reservoir Development (GARD)
- Grove Parish Council
- Guildford Borough Council
- Hermes
- Herts and Middlesex Wildlife Trust

- Historic England
- Hogsmill Catchment Partnership
- Horsham District Council
- ICE
- Iceland Ventures Limited
- Icosa Water
- Independent Water Networks Ltd (IWNL)
- Kennet Catchment Partnership
- Kew Foundation
- Kingston Bagpuize Parish Council
- Lakehouse
- LedNET
- Lee Valley Regional Park
- Lockinge Parish Council
- London Borough of Barnet
- London Borough of Bexley
- London Borough of Brent
- London Borough of Bromley
- London Borough of Camden
- London Borough of Croydon
- London Borough of Ealing
- London Borough of Enfield
- London Borough of Greenwich
- London Borough of Hackney
- London Borough of Hammersmith & Fulham
- London Borough of Haringey
- London Borough of Harrow
- London Borough of Havering
- London Borough of Hillingdon
- London Borough of Hounslow
- London Borough of Islington
- London Borough of Lambeth
- London Borough of Lewisham
- London Borough of Merton
- London Borough of Newham
- London Borough of Redbridge
- London Borough of Richmond upon Thames
- London Borough of Southwark
- London Borough of Sutton
- London Borough of Tower Hamlets
- London Borough of Waltham Forest
- London Borough of Wandsworth
- London Chamber of Commerce
- London Councils
- London Fire Brigade

- London First
- London Wildlife Trust
- Lower Lea Catchment Partnership
- Luton Lea Partnership
- Lyford Parish Council
- Marcham Parish Council
- Milton Parish Council
- Mole Valley Catchment Group
- Mole Valley District Council
- Montgomeryshire Wildlife Trust
- National Farmers Union (NFU)
- National Federation of Anglers
- National Flood Forum
- National Trust (London & SE)
- National Trust (Wilts, Gloucs)
- Natural England
- Natural Environment Officer
- Natural Resources Wales
- New River Group
- National Infrastructure Commission (NIC)
- North Wessex Downs AoNB
- NWGB
- Ock catchment partnership
- OFWAT
- Oxford City Council
- Oxfordshire County Council
- Oxfordshire Farm Advice Project
- Oxon Ray
- Pang Valley Flood Forum
- Peabody Trust
- Pennon Water Services
- Policy Connect
- Port of London Authority (PLA)
- Portsmouth Water
- Ravensbourne Catchment Improvement Group
- Ray Catchment Groups
- Reading Borough Council
- Regent Water
- Ridgeway Working Group
- River Chess Association
- River Colne Catchment Action Network
- River Lea Catchment Group
- River Loddon Catchment Group
- River Thame Conservation Trust
- River Thames Society

- River Wandle Community Catchment Plan
- River Wye Catchment Group
- Roding Beam & Ingrebourne Catchment Partnership
- Royal Berkshire Fire & Rescue Service
- Royal Borough of Kensington and Chelsea
- Royal Borough of Kingston Upon Thames
- Royal Borough of Windsor & Maidenhead
- Royal Parks
- RSPB
- RWE Generation UK
- Rye Meads Catchment Partnership
- Scotiabank
- Scottish Water Horizons
- Sevenoaks District Council
- Severn River Trust
- Severn Trent Water
- Severn Trent Connect
- Slough Borough Council
- South Buckinghamshire District Council
- South East River Trust
- South East Water
- South East Water Choice
- South Oxfordshire District Council
- South Staffs Water
- South West Water
- Southern Water Services Ltd
- Spelthorne Borough Council
- SSE Water
- St Helen Without Parish Council
- Steventon Parish Council
- Stort River Partnership
- Stratford Upon Avon District Council
- Subsea Desalination
- Surrey Hills AONB
- Surrey Wildlife Trust
- Sutton and East Surrey Water Plc
- Sutton Courtney Parish Council
- Swindon Borough Council
- Tandridge District Council
- TEC
- Thame Catchment Partnership
- Thames 21
- Thames and South Chilterns Catchment Partnership
- Thames Anglers Conservancy
- Thames Estuary Partnership

- Thames Rivers Trust
- Thames Valley Angling Association
- Thames Valley Chamber of Commerce
- Thamesmead and Marsh Dykes Catchment Partnership
- The Bank of Nova Scotia
- The Bank of Tokyo-Mitsubishi UFJ, Ltd.
- The London Lee Catchment Partnership
- The Lower Thames (Maidenhead to Teddington) Catchment Partnership
- The Rib and Quin Catchment Partnership
- The Water Retail Company
- Three Sixty
- UNISON
- United Utilities
- Upper Lea Catchment Group
- Upper Thames Catchment Management Sub Group
- Upper Thames Clay Vales
- Vale of White Horse District Council
- Water Choice
- Water Plus Limited
- Water2Business
- Waterscan
- Waterwise
- Waverley Borough Council
- Welsh Government
- Wessex Water
- West Berkshire Council
- West Hanney Parish Council
- West Hendred Parish Council
- West Oxfordshire District Council
- Wey Landscape Partnership
- Wild Oxfordshire
- Wildfowl and Wetlands Trust
- Wiltshire and Berkshire Canal Trust
- Wiltshire County Council
- Wiltshire Wildlife Trust
- Windrush Catchment Group
- Woking Borough Council
- Wokingham Borough Council
- WWF-UK
- Wycombe District Council
- Yorkshire Water
- Tidal Thames Catchment Partnership
- Zoological Society of London (ZSL)

# Annex 2: Email advising of the public consultation

## Shape your water future.

Today marks the start of the public consultation on our draft Water Resources Management Plan and we want to hear your views.

A safe and reliable water supply is essential for all our customers, a healthy environment and a prosperous economy. Our draft Water Resources Management Plan sets out how we propose to meet our customers' needs for water until the end of the century, supporting housing and economic growth, whilst protecting and improving the environment.

It includes our proposals to further reduce leakage, install more water meters and give more assistance to our customers to manage their water use. It also outlines which new water supply schemes will be needed, and explains how our draft plan aligns with those of other water companies to provide an overall solution to the water needs of the South East of England.

An overview of our draft plan is attached to this email. To read our full draft plan and find out how you can participate in the consultation visit www.thameswater.co.uk/yourwaterfuture.


The public consultation is open from today until Sunday 29 April 2018.

Your comments will help us shape, refine and finalise our draft plan. We'll carefully consider all the responses we receive and at the end of the consultation we'll publish a report setting out how we have taken the comments into account in revising our Plan.

We are holding a number of events across our area to give you the chance to talk to us about our draft plan and give us your feedback. Details of where we will be and when are provided below, with full details on our website www.thameswater.co.uk/yourwaterfuture.

We look forward to hearing your comments. If you have any questions or queries on the consultation please email consultations@thameswater.co.uk

## Local Engagement Forums

### The Abingdon area

**Tuesday 20 February** – NEACCA Community Centre, Abingdon

### Hounslow & Richmond

**Thursday 22 February** – St Edmund's Catholic Primary, Twickenham

### Cirencester and the Cotswolds

**Tuesday 27 February** – Bingham Hall, Cirencester

### Beckton

**Thursday 1 March** – Beckton Community Centre, London

### Bicester

**Tuesday 6 March** – Bicester Methodist Church, Bicester

### Beddington

**Thursday 8 March** – All Saints Church Centre, Mitcham

### Bracknell and Wokingham

**Tuesday 13 March** – Wildrigings Primary School, Bracknell

### Stevenage

**Thursday 15 March** – The Oval Community Centre, Stevenage

## Shopping centres

### The Glades, Bromley

Date: Monday 12 to Sunday 18 February 2018

Address: The Glades, High Street, Bromley, BR1 1DN

### Ealing Broadway shopping centre

Date: Monday 19 to Sunday 25 February 2018

Address: The Broadway, Ealing, London, W5 5JY

### The Mall, Haringey

Date: Monday 26 February to Sunday 4 March 2018

Address: The Mall Wood Green, 159 High Road, Wood Green

### The Oracle, Reading

Date: Monday 12 to Sunday 18 March 2018

Address: The Oracle Shopping Centre, Reading, RG1 2AG

**The Peacocks shopping centre, Woking**

Date: Monday 19 to Sunday 25 March 2018

Address: Woking Shopping, Commercial Way, Woking, GU21 6GH

Thank you

**Richard Aylard CVO**

External Affairs and Sustainability Director

Clearwater Court, Vastern Road, Reading, RG1 8DB

# Annex 3: Consultation questions

| Consultation questions |
| --- |
| *P6 of our overview document provides information on how more severe droughts in the future could affect our customers.*<br><br>Q1 Our proposed plan is designed to maintain all of our customers' water supply, with no need for it to be rationed, during a severe drought (the kind that might happen once in every 200 years). We have some options about how quickly we achieve this:<br><br>• Ensure that we can maintain all of our customers' water supply during a severe drought by 2030<br>• Delay the work so we can maintain all of our customers' water supply by 2035.<br>• Speed up the work so we can maintain all of our customers' water supply by 2027, the earliest we can deliver suitable options.<br><br>Please give us any comments on this. |
| *Pages 8-9 of our overview document provide information on how we have worked with our customers to understand their views and preferences.*<br><br>Q2 Please give us your comments on our summary of our customers' views.<br><br>*Pages 10-13 of our overview document provide information on the options available to help manage future water supply*<br><br>Q3 Please give us your comments on the options we have considered.<br><br>*Pages 16-18 of our overview document provide information on the approach we have taken to develop our proposed water plan.*<br><br>Q4 Please give us your comments regarding the approach we have taken. Do you have any specific comments on:<br><br>1) How we have reflected the priorities of our customers<br>2) The way we have shortlisted options<br>3) How we have considered environmental and social impacts<br>4) The alternative programmes of options we have considered |
| *Pages 20-22 of our overview document provide information on the proposed plan.*<br><br>Q5 Please give us your overall comments on our proposed plan.<br>Q6 Please give us any specific comments on our plans to:<br><br>1) Reduce leakage<br>2) Continue our household metering programme<br>3) Promote the efficient use of water<br>4) Take more water from the River Thames at Teddington Abstraction<br>5) Provide new water supply in the long term<br><br>Q7 Please give us any comments on the option to transfer water from other water |

companies in the Midlands, Wales or the North West.

Q8 Please give us any other comments on our proposed water plan.

# Appendix A - Response to EA and Natural Resources Wales (NRW) representations

Please see separate document.

# Appendix B - Response to Ofwat's representation

Please see separate document.

# Appendix C - Response to Natural England's representation

Please see separate document.

# Appendix D - Response to Historic England's representation

Please see separate document.

# Appendix E - Response to Customer Challenge Group's representation

Please see separate document.

# Appendix F - Response to representations from stakeholder organisations

Please see separate document.

# Appendix G - Response to representations from individuals

Please see separate document.

# Appendix H - Severn Thames Transfer – Cotswold Canals

Please see separate document.

# Appendix I – Note on the cost assessment of options

Please see separate document.

# Appendix J - Severn Thames Transfer – Further work

Please see separate document.

# Appendix K – Teddington Direct River Abstraction – Common Understanding

Please see separate document.