



# Shape your water future.

Feedback from the further consultation on our revised draft Water Resources Management Plan 2019 and an overview of our plan.

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April 2019

# Introduction

Water is essential for everyday life, the wellbeing of the environment and economic growth. It's our job to provide a secure supply of safe drinking water for our customers now and in the future.

Every five years we produce a Water Resources Management Plan (WRMP) which sets out the actions we will take to manage our current water resources and the investment needed to continue to provide a resilient water supply for future generations.

In 2015 we started to develop our plan which looks forward over the next 80 years, from 2020 to 2100. This is known as WRMP19. We took a long-term view in recognition of the scale and complexity of the challenges that we face.

We developed our plan based on the insights of our customers, who participated in a wide-ranging and detailed programme of research and engagement. Our customers told us that they want us to build a resilient plan making sure there is enough water for future generations.

We worked with regulators, interest groups including environmental organisations such as RSPB and WWF, organisations representing business such as the Chambers of Commerce, and many more. We listened to their views on what they wanted from a future water supply and took account of their feedback in developing our plan.

We also worked collaboratively with water companies from across the South East of England, through the Water Resources in the South East (WRSE) group, to identify opportunities for shared solutions and ensure we plan to secure water supplies for the whole region.

The purpose of this document is to provide a recap on the challenges we face for water supply, to outline the approach we have taken to develop our plan and to summarise the feedback we received to the further consultation held in autumn 2018. It also sets out our preferred plan and the further work that we intend to do before 2022 to be confident we are on the right course for the future.

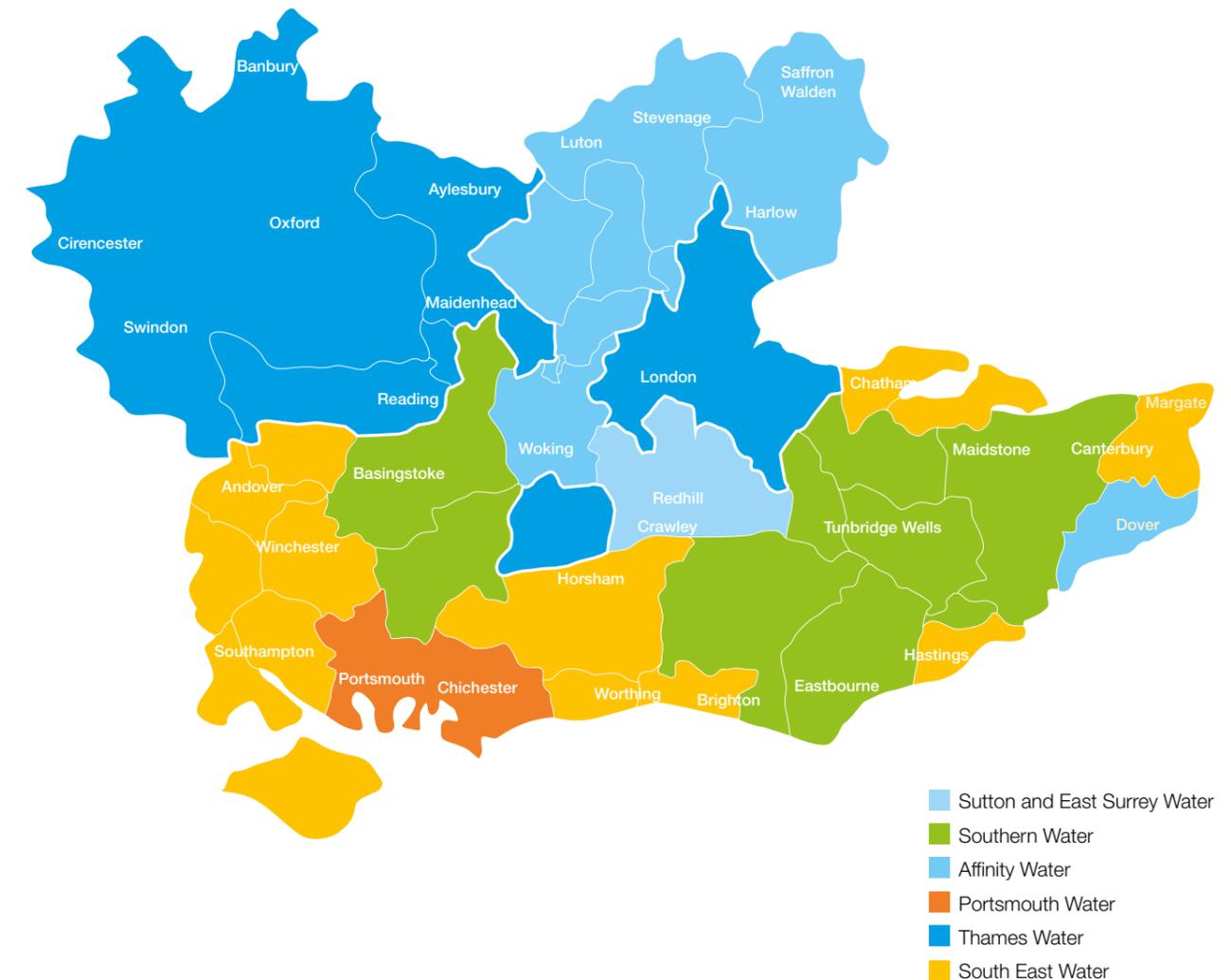
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 This symbol signposts relevant sections of the updated revised draft plan and other related documents if you want to read more.

## Working across the South East region

Water companies in the South East are working together to develop an affordable, sustainable and resilient regional strategy for water - one that delivers for customers, society and the environment. This includes reducing the amount of water that is lost or wasted so there is more to go around - through fixing leaks on the pipe network and encouraging customers to use less through metering and ambitious water efficiency initiatives. As well as finding better or new ways of sharing existing water sources and developing new sources of water which can support the whole region. Here's a map of the South East region showing the water companies that are part of the WRSE group.



# The challenges we face

Many people think there is plenty of water in the UK, but the South East of England is one of its driest regions and parts of the region have less rainfall per person than many Mediterranean countries. Prolonged dry spells affect our rivers and groundwater and reduce the amount of water we can take for homes and businesses. The pressure on our water supplies will increase in the future with expanding towns and cities combined with changes to the climate and the need to protect the environment.



## A growing population

London and the Thames Valley is one of the most densely populated parts of the country, and the number of people living and working here is forecast to grow significantly. We developed forecasts of population growth using government data. By 2045 we forecast that there will be an additional 2 million people living in our area increasing to over 4 million more people by 2100. That's the equivalent of Birmingham and Leeds moving in. And they will all need water.



## Protecting the environment

We take water from rivers and groundwater for public water supply. The Environment Agency controls how much water we can take through abstraction licences, to make sure the environment is protected. In the past 30 years we have reduced the amount of water we take by 100 million litres per day and in the future the amount of water we will be able to take will reduce further. In the next five years we plan to reduce our licensed abstraction by nine million litres per day from both the River Cray and the River Chess, to protect these sensitive sources.



## Our climate is changing

In 2018 we had some of the most extreme weather on record, with the freezing weather of the 'Beast from the East' in February and March followed by one of the driest and hottest summers since records began in 1910. Climate change will affect the amount of water that is available, it is likely to reduce our supply of water by 180 million litres of water per day in London by 2085. It will also bring more extreme weather events such as storms, floods and droughts.

Taking all these factors into account, we forecast there will be a substantial shortfall between the amount of water we need and the amount of water we have available. The shortfall will be around 387 million litres of water per day by 2045, rising to 688 million litres a day by 2100 – that's about 25 per cent of the volume of water that we currently put into supply for all our customers in London and the Thames Valley. The pressure is most severe in London, but there is also pressure in other parts of our region.

The diagram shows how our water supplies in London will be affected by each of these challenges in the next 25 years, to 2045, and the next 80 years, to 2100.



## Resilience to severe drought

Our customers and stakeholders have told us that they want us to strengthen our resilience to severe drought, moving from protection to a 1-in-100 year event to a 1-in-200-year event. To do this we will need to invest in new water infrastructure providing a further 150 million litres of water per day.



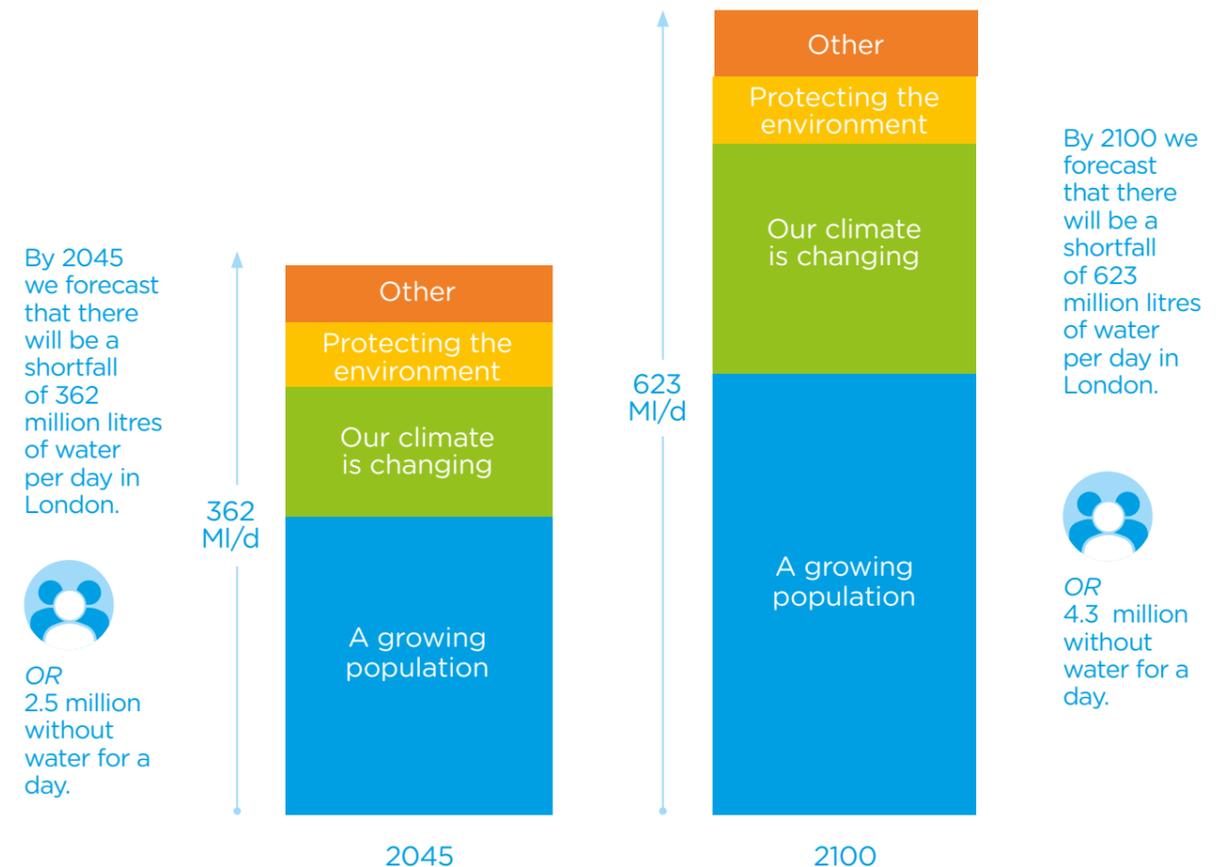
## Taking a regional perspective

These challenges are not unique to Thames Water's supply area, they are faced across the wider South East of England. We have worked closely with other water companies in the South East region to identify shared solutions that could work for the wider region.

The consequences of not planning our future water supply properly now are huge - for society, the economy and the environment. The introduction of severe water use restrictions, which would mean water could be cut off for part of the day or supplied to households at very low pressures, would fundamentally transform everyday life. It would potentially force the closure of schools, and offices, as well as causing damage to wildlife, and costing the economy up to £330m a day in London alone. The water crisis faced in Cape Town in South Africa in 2018 was a warning to many other large cities.

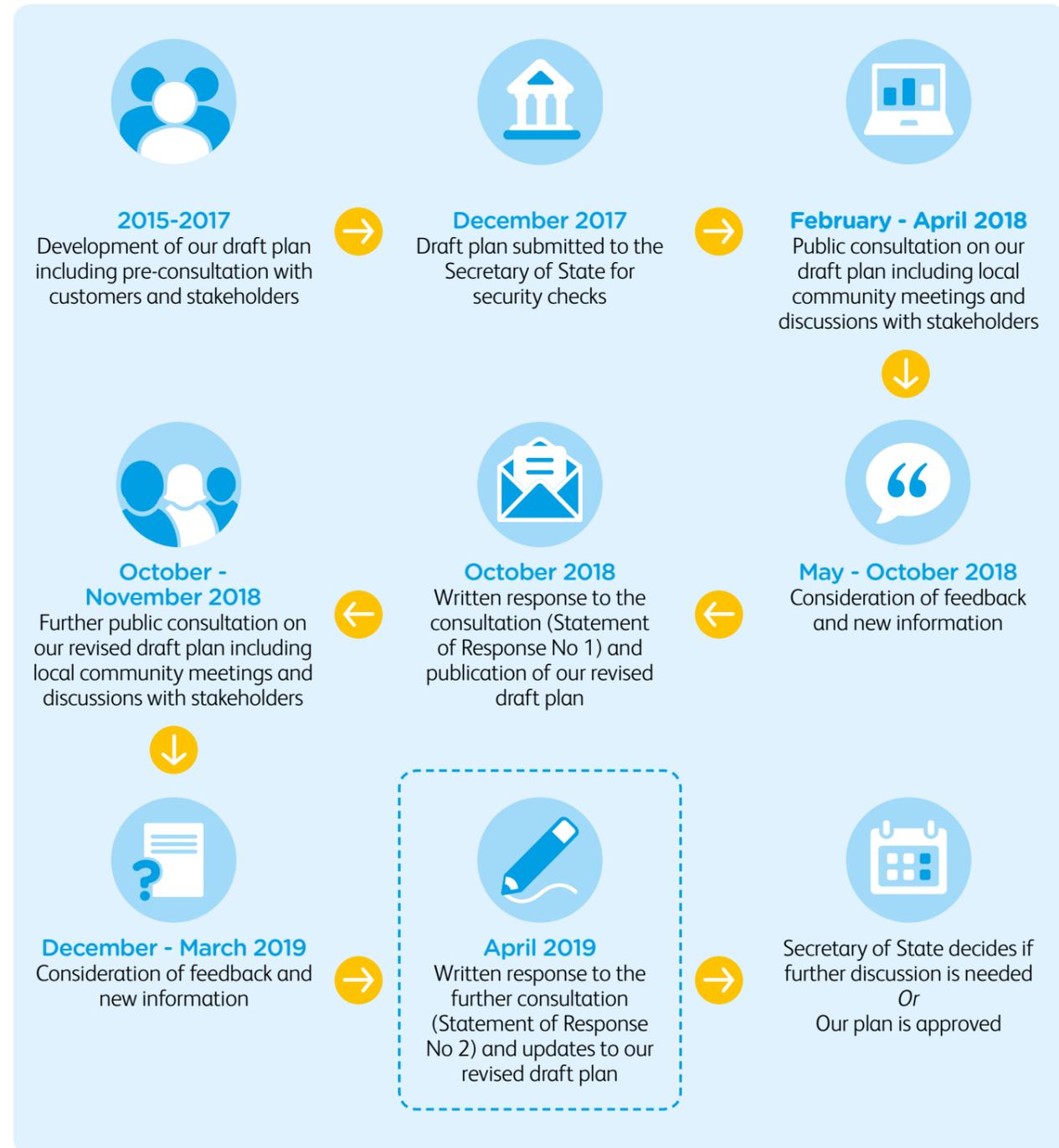


“London's growing population is compounding the pressures on our often Victorian water infrastructure. We need to invest to build a network fit for the future, as widespread water shortages would be disastrous for the capital. Thames Water's plan will plough billions of pounds into improving the resilience of water infrastructure, while cutting prices and reducing pollution. This plan, and the longer-term proposal for a new reservoir in Oxfordshire, are critical to securing the capital's water supplies for generations to come.”



# Developing our plan

Over the past four years we have engaged with customers and stakeholders as we developed our plan.



# Your feedback to the further consultation

In autumn 2018 we ran a further phase of public consultation on our revised draft plan and asked for feedback on the changes that we had made to our draft plan. The further consultation ran for eight weeks from 3 October to 28 November 2018. We received more than 750 representations, as well as feedback from our customers. Whilst the representations covered a number of issues, over half the respondents were

concerned primarily with two issues – local opposition to the development of a new reservoir in Oxfordshire and support for the restoration of the Cotswold Canals as part of a regional water transfer scheme.

Here's a summary of what you told us.

**What you told us**

**Leakage**

- The proposed leakage reduction targets (15 per cent by 2025 and to halve leakage by 2050) are supported.
- More information is needed on the delivery plan to provide confidence that the targets will be achieved.

*“The CCG is also conscious that the 2050 target is very much an aspiration with very little detail behind it – while this is understood, given the time horizon, it is important to remember that customers feel very strongly that Thames should not be “allowed” to invest in new infrastructure until leakage is controlled and therefore fleshing out such thinking should very much be a priority”*  
Thames Water Customer Challenge Group



## What you told us

### Using water efficiently



- The measures to reduce demand for water, such as the installation of smart meters and the promotion of the efficient use of water, were supported.
- Some were concerned about over-reliance on demand reduction measures which are not fully within the company's control. Whereas others, mainly opponents to the reservoir, proposed that with further action to reduce demand the reservoir would not be needed.

“While we fully, and actively, support further demand management and leakage reduction activity this alone will not provide the level of resilience to future pressures that consumers in the south east of England will expect from their water companies.”  
Consumer Council for Water

### Teddington Direct River Abstraction

- Some welcomed the removal of the scheme due to the potential negative environmental impacts, however a few queried why it was removed at such a late stage.
- Others challenged that the opportunities to mitigate the impacts had not been fully examined.

### Deephams Water Reuse



- Some concerns were raised about the potential impacts on the environment and navigation of the river.
- In contrast, opponents to the reservoir suggested that the concerns were over-emphasised.
- Customers wanted reassurance about reuse, with concerns about the quality of drinking water.

“We have a number of concerns about the reduction in flow from Deephams Sewage Treatment Works for this scheme and the environmental impacts on downstream habitats.”  
Environment Agency

### Water Transfers - Severn-Thames Transfer (STT)



- Some welcomed further work to understand potential issues, whereas opponents to the reservoir argued that the scheme should be advanced.
- Supporters of the Cotswold Canals argued that the restoration of the canals would provide wide benefits and would be preferable to a new pipeline.

“A restored Cotswold Canal, designed to satisfy raw water conveyance requirement, would have significant social, environmental and economic benefits to communities, businesses, and customers that we feel need to be included in TW's decision-making process.”  
(Canal and River Trust)

### Water Transfers - Oxford Canal

- The Environment Agency raised a number of concerns about the availability of water, the environmental impact and the reliability of the scheme and stated that further work was needed to address these points.

“The Oxford Canal - Cropredy transfer option is selected in the company's preferred programme in 2030. This is an earlier implementation date than in the company's draft plan. The scheme provides 15Ml/d and is part of a group of options that are selected to allow the company to meet a 1:200 drought event level of resilience. We have a number of concerns around the reliability and environmental impact of this option”  
Environment Agency

## What you told us

### South East Strategic Reservoir Option (SESRO)



- Supporters of the reservoir cited its role in increasing resilience to drought and in protecting rivers, including chalk streams.
- Opponents, mainly from the local community, raised concerns about the impact on the local environment including exacerbation of local flooding, landscape, aesthetics and safety.
- The reservoir was our customers' preferred long-term option.

“The last reservoir built in the South East was Farnborough in 1976 – since then the stresses on abstraction and water demand have increased substantially. The Abingdon reservoir is needed now. Why wait until 2037? That might already be too late to save already over-stressed chalk streams.”  
(Household customer, OX16)

“The reservoir if developed would ...have an everlasting effect on our community. It would entirely change the landscape in which the parish is situated and bring significant risk and disorder to our lives.”  
East Hanney Parish Council

### Protecting vulnerable watercourses



- Strong support was stated for the ambition to take less water from the environment, and there were calls to advance the reservoir to fast track the ambition.
- Opponents of the reservoir proposed alternative solutions to protect vulnerable chalk streams.

“ARK is delighted that TW is committed to investigating a reduction in abstraction at Marlborough and Clatford, and has proposed how much they might reduce abstraction. Abstraction here has a detrimental impact on the natural function of the chalk stream headwaters.”  
ARK

### Deciding on the preferred plan



- The Environment Agency called for clearer information to explain how the preferred programme was selected, and proposed the development of an adaptive plan.

“We therefore recommend that the company produces an adaptive plan which shows clearly the alternative options, decision points, and how it is working on the alternative options alongside its preferred options, so it can adapt to the results of the studies as it completes them.”  
Environment Agency

- There was wide support for collaboration with other water companies and a coordinated approach to regional planning.

“We expect Thames Water to work collaboratively with others to select the optimum portfolio that will ensure short, medium and long-term resilience for the south east, offering best value to customers, and realising appropriate wider environmental and social benefits.”  
Ofwat

We have reviewed all the representations to the further consultation and produced a report called the Statement of Response No.2 which sets out our consideration and any changes to the revised draft plan as a result.



Go to the Statement of Response No.2 to read more about the further consultation.

# Our proposed plan

We have developed our plan to address the pressures on water supplies to 2100, strengthen our resilience to drought and support a collaborative approach across the South East region to ensure a resilient water supply for future generations.

We assessed more than 200 options. These included options to make the most of the supplies we already have, including actions to reduce the amount of water lost through leaks from our pipes and installing smart meters in our customers' homes, and options to boost our supplies, from traditional schemes such as a new reservoir to more innovative approaches such as reusing treated wastewater from sewage treatment works. We have also worked closely with other water companies and organisations to see if there are opportunities to trade water and transfer water between regions.

 Go to Section 7 and 8 of our revised draft plan to read more about the options.

We have followed industry guidance, and used advanced modelling tools, to decide on the best value programme of options, taking account of a range of factors including cost, the preferences of our customers, and the positive and negative impacts on the environment.

 Go to Section 10 of our revised draft plan to read more about programme appraisal.

We shared our analysis with a panel of independent experts who scrutinised and challenged our approach and the decisions that we made.

 Go to Appendix Y of our revised draft plan to read more about the role of the Expert Panel.

In line with the preferences of our customers and stakeholders we have prioritised an ambitious leakage and demand reduction programme, in combination with the development of new water supply options.

## Over the next 5 years we will make the best use of our available water resources

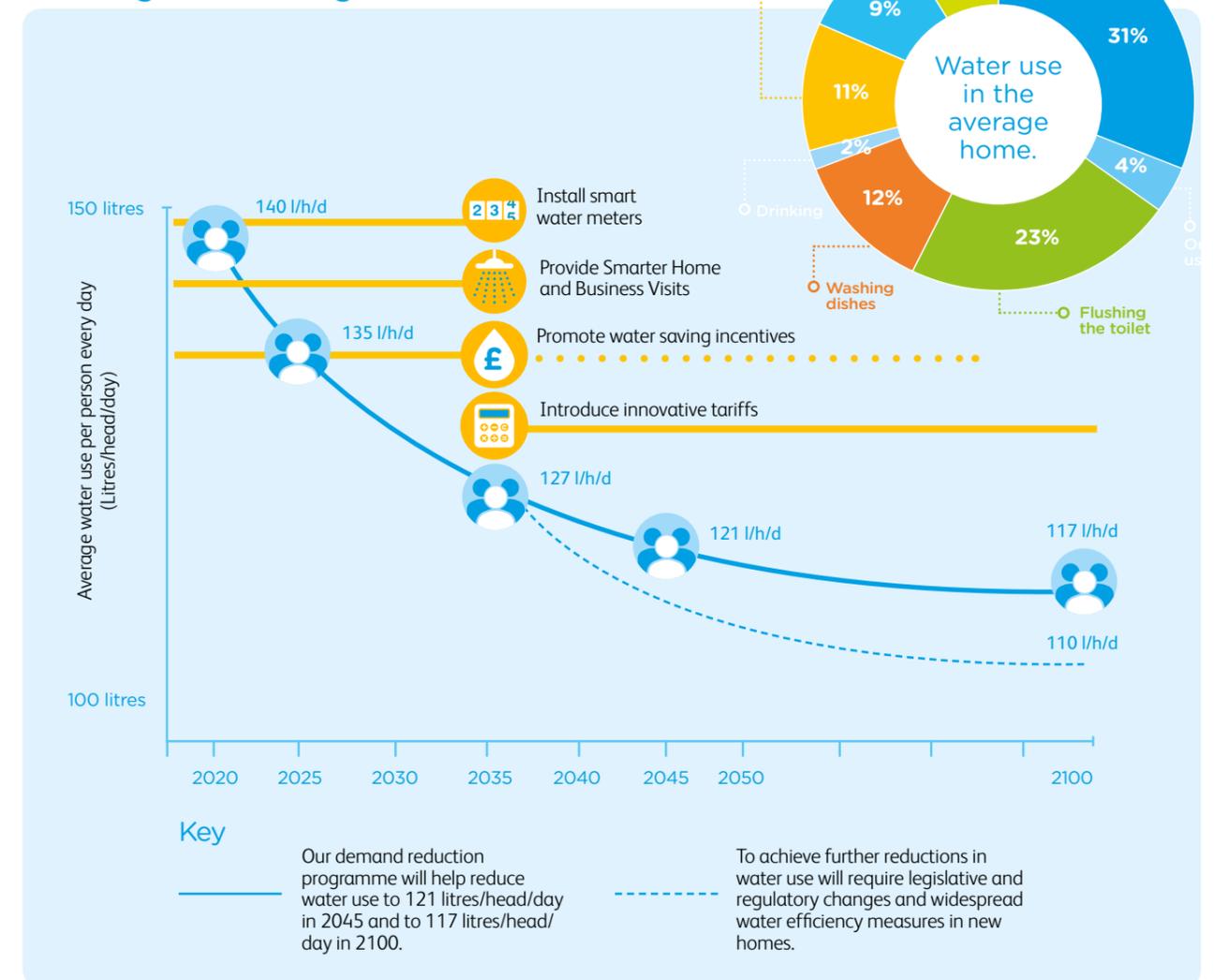
- Reducing the amount of water lost through leaks in our pipes.** This sounds simple but it isn't. A lot of our water pipes are old, many being laid in the Victorian period. Our pipe network is made up of over 31,000 km of large pipes called mains which move water around London and the Thames Valley and a further 13,000 km of smaller pipes, called communication pipes, which are connected to our customers' properties. In addition, our customers have an estimated further 32,000 km of pipes which take water into their home or business. A network of this scale and age will always have cracks and fractures and therefore leak. We are committed to reduce the amount of water that we lose through leaks. Currently around 25 per cent of the volume of water that we put into supply is lost through leaks from the pipe network. We have set a target to reduce leakage by 15 per cent (from our 2020 regulatory target) by 2025, and to halve leakage by 2050. We will achieve our targets by using new technology and smart data to help pinpoint leaks more accurately, increase activity to find and fix leaks and replace water mains.

- Continuing to install smart water meters in our customers' homes.** Smart meters are essential to achieve a step change in managing our resources and our network. They provide information to enable us to accurately understand where water goes, helping to tackle leakage, and also helping our customers' understand how much water they are using and how they can reduce it. By 2025 we will install a further 700,000 smart meters, and by 2035 we will have completed our programme to meter all individual supply connections, where feasible.

- Encouraging our customers to use water efficiently.** Our customers have told us that they want to save water and would like more information and advice to help them. We are currently delivering the UK's largest water efficiency programme, this includes a wide range of activities to promote the benefits of saving water at home and at work. Over the next 5 years we will do a further 400,000 Smarter Home and Business visits as part of which we provide free water efficient devices and tailored advice for customers. We will also continue to work with schools, local communities and businesses to encourage the efficient use of water.

Our ambitious demand reduction programme will help to reduce water consumption from 140 litres per person per day in 2020 to 135 litres in 2025. To achieve sustainable reductions in the longer term will need a broad mix of action. We are working with partners to explore changes to legislation and policy such as the introduction of water efficient labels on toilets, showerheads and other water using products, and changes to Building Regulations so that new homes are designed and built to higher standards of water efficiency. We are also looking at technological innovation such as the implementation of non-potable supply in new developments.

## How much water do we use now and how might this change in the future?



We will also need to develop new sources of water.

By 2030:



-  Buy water from RWE NPower who have spare water created by the closure of Didcot A coal fired power station (18 MI/d)
-  Groundwater scheme at Southfleet in Kent (8 MI/d)
-  Aquifer storage and recovery scheme at Horton Kirby in Kent (5 MI/d)
-  Transfer water from the Midlands using the Oxford canal in collaboration with the Canal and River Trust (11 MI/d)
-  Water reuse scheme at Deephams sewage treatment works in Edmonton, north London (45 MI/d)

 South East Strategic Reservoir Option (SESRO) is a strategic storage and transfer reservoir scheme which will be developed jointly by Thames Water and Affinity Water, and potentially other water companies in the South East. When the reservoir is operational from the late 2030s it will provide up to 294 MI/d raw water supply for London, the Thames Valley and regional water demand from Affinity Water. The scheme will take water from the River Thames at times of high flow and store it to be used when supplies from other sources are low. The relatively low running cost offers the flexibility to use the scheme year-round helping to relieve pressure on the water environment, including reducing abstraction to improve vulnerable chalk streams and other watercourses. The additional storage capacity would also provide greater operating flexibility to maintain our ageing existing reservoirs. It also offers opportunities for biodiversity and recreation benefits and is our customers' preferred option.

From 2080:

- A raw water transfer from the River Severn to the River Thames, referred to as the Severn-Thames Transfer (STT) (161MI/d)

 The Severn-Thames Transfer (STT) would involve buying water from other water companies in the Midlands, North West of England and Wales and transferring the water to the River Thames catchment. It would be transferred from the River Severn, over the Cotswolds, to the River Thames near Oxford by a new pipeline. With the new reservoir the water can be stored and this would increase the reliability of the transfer scheme and its potential use year round. It would also support the potential future water needs in the South East region. There are a number of aspects of the scheme which need further study including the amount of water that would be lost on its journey, the environmental impacts and the effect on other river users and abstractors.

From 2030:



-  Groundwater schemes at Addington and Merton in London (3 MI/d)
-  Artificial recharge schemes at Kidbrooke and Merton in London (12 MI/d)
-  Aquifer storage and recovery scheme at Addington in London (3 MI/d)
-  South East Strategic Reservoir (SESRO) in Oxfordshire jointly promoted by Thames Water and Affinity Water (294 MI/d)

Information in brackets is the amount of water that each scheme provides in million litres per day (MI/d).



# Adapting to an uncertain future

We can't be certain of how the future will be, but it's clear that there is a growing water shortfall and we need to plan ahead to provide a secure water supply. We have developed our plan based on the best information available. Some of our forecasts may turn out to be wrong, for example some of our customers may not reduce their water use as much as predicted, the number of people living in our area may not grow as quickly as forecast or the weather patterns may change more quickly than expected, but we can't delay planning - our customers expect a reliable water supply whatever the external circumstances.

To enable us to take account of new information, and reflect changes, we have developed an adaptive plan. Our adaptive plan sets out our preferred plan, based on what we know now, it also sets out alternative pathways of options that we can follow if further work and new information shows that we should change course. This flexible approach means we can be confident that we can continue to provide a secure and sustainable supply of water in spite of the challenges of an ever-changing world. Our adaptive plan is shown in the diagram, our preferred plan is shown as the green pathway, and the alternative pathways are shown in blue and orange.

Over the next four years we will do further work to examine all the new water supply options included in our adaptive plan. This work will be done in conjunction with the other water companies, regulators and interested stakeholders. It will examine the supply options in more depth, for example the impact on the environment from taking more water from the Thames Tideway and the amount of water that would be lost when transferring water over long distances between regions. The further work will enable us to understand if the options are feasible as part of long-term water supply. The need for investment in new water supply in the South East region is widely recognised and Ofwat, our economic regulator, has approved investment needed to do this further work.

We need to make a decision in 2022/23 on which schemes to promote to maintain security of supply. This date aligns with a similar decision point in Affinity Water's revised draft WRMP19. The further work on new supply options will inform that decision. There are three key decision points as shown in the diagram and explained in the following text.

## 2030 - To ensure we can cope with severe drought

As well as the substantial demand reduction plan, our preferred plan proposes a series of small resource schemes including water reuse at Deephams, a raw water transfer via the Oxford canal and groundwater development. These schemes will help ensure we are better able to cope with a severe drought by 2030. If our water situation improves before 2030 we can defer or cancel construction of some of these smaller options or if Deephams reuse or Oxford Canal transfer are not available, or the shortfall worsens, we could introduce a larger reuse option at Beckton sewage treatment works, or potentially at Mogden sewage treatment works in West London. The lead time to develop water reuse schemes is around seven to eight years so a decision is required in 2022/23.

## 2037 - To ensure the South East region is resilient

Our preferred plan proposes the development of the South East Strategic Reservoir Option (SESRO) in 2037/38 as the best-value option to meet the water needs of the South East region. It would be developed as a joint scheme by Thames Water and Affinity Water and could support other parts of the region too. The lead time to develop SESRO is 15 years, as such we need to make the decision in 2022/23 on whether this option is going to be progressed, or an alternative option is going to be introduced.

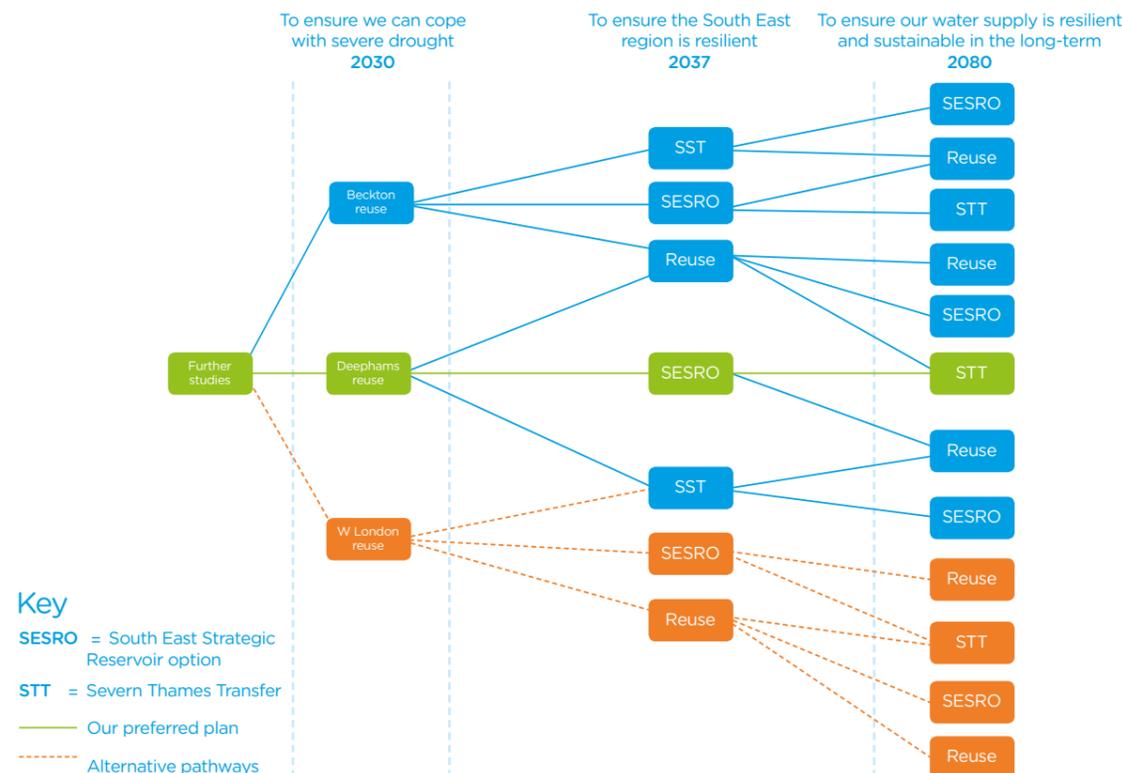
## Beyond 2080 - To ensure our water supply is resilient and sustainable in the long-term

Our preferred plan proposes the development of the Severn-Thames Transfer (STT) to maintain a secure and sustainable supply of water for our customers in the long-term. This offers better value than reuse and desalination, and would support the potential future need in the west of the Thames catchment. The further studies will enable the decision to be made in good time on the source, or combination of sources of water, and whether this is the right option to promote, and when.

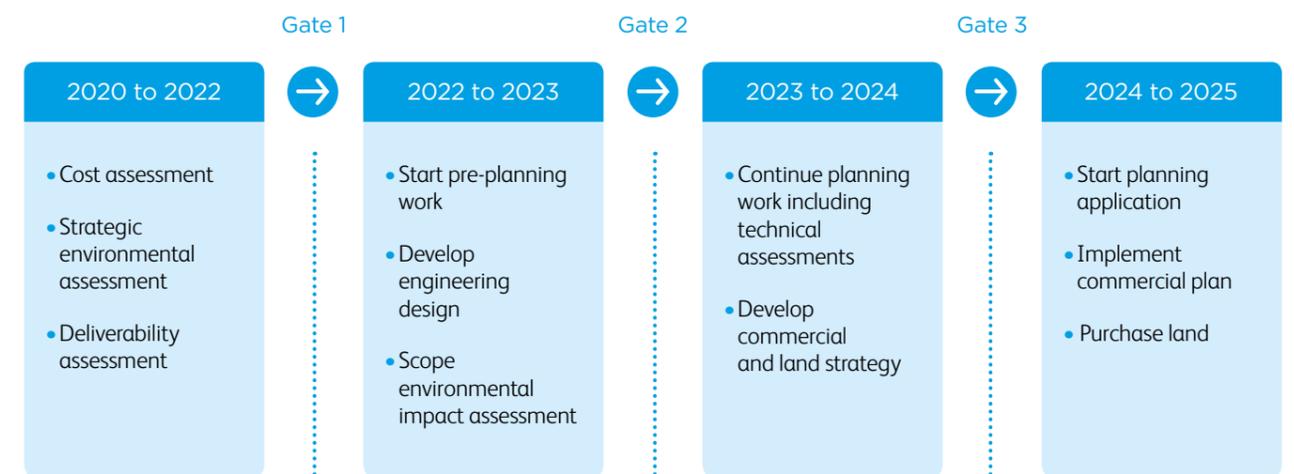
### Further work

We have committed to undertake the further work on strategic water supply options in conjunction with the other companies. The further work will follow a staged or 'gated' approach. A decision will be made at the end of each stage on whether to stop development or continue through the 'gate' to the next stage. This is a new regulatory process and is in development, an illustration is shown in the diagram. The approach will ensure that all the new water supply options are considered in a fair and consistent way, there is transparency in the work undertaken and that customers' money is spent wisely.

## Our adaptive plan



## Proposed "gated" approach



Alongside these studies we will continue to examine our forecasts, and other external challenges such as providing greater resilience to cope with a more extreme drought event, and new development such as the Oxford – Cambridge growth arc which could result in one million more homes by 2050. The effect of these factors will be to bring forward the need for new resource development.

There is also dialogue, led by government, on the development of the water resources planning framework. This will include a new national framework to help manage England’s water resources, it will look at long-term pressure facing all sectors, and seek to ensure greater

water resilience in the future. It will be supported by more developed regional water resource plans. The national framework and regional plans will provide a clear backdrop for water companies to develop their individual WRMPs.

We will continue to work closely with regulators and stakeholders as we undertake this work. We have published information on the further studies and an outline monitoring plan in the updated Section 11 of the revised draft plan. We will review our plan annually, and will undertake a full and thorough review of our plan in 2022/23.

 Information on further studies and our monitoring plan is included in Section 11 of our updated revised draft plan

### National planning



**December 2019**  
National Framework Guidance

### Regional planning



**February 2020**  
Statement of need for the South East



**April 2022**  
WRSE regional plan

### Company planning



**September 2022**  
Draft WRMP24 for public consultation



**March 2023**  
Response to consultation and revised draft WRMP24



**Spring 2023**  
Final WRMP24

# The next steps

In April 2019 we will submit our updated revised draft plan to the Department for Environment, Food and Rural Affairs. The Secretary of State for the Environment, Food and Rural Affairs, based on advice from the Environment Agency, and with consideration of the responses to the further consultation, will decide if it is necessary to have further discussion on our revised draft plan, or approve it.

Thank you for taking the time to read this document. If you would like to read more detail on our plan please go to [thameswater.co.uk/wrmp](https://thameswater.co.uk/wrmp) and if you have any questions or further comment please email [consultations@thameswater.co.uk](mailto:consultations@thameswater.co.uk)

## Documents

This document is a summary of the feedback we received to the further consultation on our revised draft plan, and provides an overview of our plan.

We have also published new and updated reports. These can be downloaded from our website [thameswater.co.uk/wrmp](https://thameswater.co.uk/wrmp)

### Statement of Response No 2

- Main Report - This presents an overview of the consultation, the main issues raised and our consideration of the comments.
- Appendices - These provide the full representations received and our detailed consideration of the points raised.
- Technical report on resource options - This responds to points raised on resource options.

Independent report on the further consultation - Community Research, January 2019

### Water Resources Management Plan 2019

- Update note - This summarises the specific changes we have made to our revised draft plan in response to the further consultation.

## Technical Report

The following sections have been updated.

- Section 10 - Programme appraisal and scenario testing
- Section 11 - Preferred programme

## Technical Appendices

The following appendices have been updated or are new in April 2019:

- Appendix B - Strategic Environmental Assessment – Addendum
- Appendix C - Habitats Regulation Assessment - Addendum
- Appendix BB - Water Framework Directive Assessment - Addendum
- Appendix X - Programme appraisal outputs
- Appendix W - Programme appraisal methods
- Appendix XX - Programme of further studies
- Appendix Y - Report from the Expert Panel



If you need a telephone language interpreter or any of this information in a different format, please call us on **0800 009 3652** (option 3).

