



Water Resources
Management Plan
October 2024



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Section 1. Introduction

1.1. This Water Resources Management Plan

This is a draft of Leaf Water's first Water Resource Management Plan (WRMP) following our appointment as a water and sewerage undertaker on 17 April 2024. It considers New Appointment and Variation (NAV) Areas for which Leaf Water has been granted a New Appointment and subsequent Variations to that appointment as of 28 May 2024. Leaf Water expects that additional variations to our appointments will be granted before the final plan is published and consequently these areas will be included when the final WRMP is submitted, following a period of consultation as prescribed by relevant legislation.

Leaf Water confirms that adequate provision is made for all development sites to cater for long-term planning horizons.

1.2. Leaf Water

Leaf Water (the trade name of Advanced Water Infrastructure Networks Ltd (AWIN)) is a NAV company that provides water and/or sewerage services under a license granted by the Secretary of State for the Department of Environment, Food and Rural Affairs (DEFRA). As with all NAV companies, AWIN is regulated by the Office of Water Services (Ofwat) through powers delegated to them in 2007. Ofwat ensures that customers are treated fairly and provides protection when the water supply does not meet the agreed standards of service.

Leaf Water was founded in February 2023 as part of the wider Advanced Utility Networks Group. The group consists of four companies; two construction firms, TriConnex and Esmart Networks, which design and construct water and electricity infrastructure assets and have been undertaking this work for over ten years, and two new asset management companies, Advanced Water Infrastructure Networks and Advanced Electrical Networks, established in February 2023 to adopt, own and operate infrastructure assets. The Advanced Utility Networks Group is backed by Fitzwalter Capital Limited, a global private investment firm.

Our first appointment was granted on 17 April 2024 for a NAV Area in Lenham, Kent with two additional variations granted on the same day. Subsequent variations have been granted for six more NAV Areas making a total of nine AWIN appointments. At the time of the draft WRMP's submission to the Environment Agency (EA), we have a further thirty applications being assessed by Ofwat. We are not supplying any consumers yet and anticipate our first connection will be in the autumn of 2024.

1.3. Leaf Water Appointments

With the introduction of competition within the water industry, and following amendments to the Water Act 2003, the opportunity was created for the independent provision of water and sewerage services by new independent licence holders.

NAVs allow companies to offer water and/or sewerage services within a specified geographic area instead of the existing appointee. As a result, developers and large non-household customers can choose their supplier for these services and enjoy the benefits of a more competitive market.

NAV licences are granted by OFWAT following a period of consultation and subject to the applicant satisfying certain criteria to ensure the interests of the customers are protected.

Leaf Water have already been granted operating licenses to provide water and sewerage services in place of the existing appointed Water Companies. We have operating licences for areas previously supplied by South East Water, Anglian Water and Essex and Suffolk Water. Further variations are soon expected to be obtained in the areas of Severn Trent Water, Thames Water, South West Water and Wessex Water. Over time we expect to have appointments in most incumbent areas across England.

Table 1.1 outlines the NAV Areas where Leaf Water have made a NAV application to supply water. We do not foresee any risks to the security of supply for customers in these areas, as negotiations with the Supplying Water Company through the Bulk Supply Agreement (BSA) process have already been completed. Additionally, Table 1.1 includes confirmation of the Supplying Water Company.

For the purposes of this draft plan, a cut-off date has been agreed for the inclusion of NAV Areas in the EA WRMP planning tables. Variations granted on or before 28 May 2024 are shown in bold and included in the planning tables of this draft plan. We anticipate that further variations will be granted both between this date and the submission of this draft plan to the EA and thereafter; these are included in the tables below for information purposes but are not included in the EA WRMP planning tables. Any application granted between the 28 May 2024 and a similar defined cut-off point prior to the final submission will be included in the final WRMP. None of the NAV Areas listed below are currently operational.

Site	Supplying Water Company	Supplying Water Company WRZ	Service	Date Granted	Date Commenced	Contract Length
Lenham	South East Water (Eastern)	WRZ 6 - Maidstone	Water and Sewerage	16 th April 2024	Not commenced	In perpetuity
Abbots Vale	Anglian Water	Cambridgeshire and West Suffolk	Water and Sewerage	16 th April 2024	Not commenced	In perpetuity
Heybridge North Gardens - Phase 4	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	16 th April 2024	Not commenced	In perpetuity
Heybridge (3,6,7)	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	17 th September 2024	Not commenced	In perpetuity
The Ridgeway	Anglian Water	Ruthamford	Water and Sewerage	21 st August 2024	Not commenced	In perpetuity
Hawton Lane	Severn Trent Water	Newark WRZ	Water and Sewerage	9 th September 2024	Not commenced	In perpetuity
Hackett Grange	Severn Trent Water	Nottinghamshire WRZ	Water and Sewerage	23 rd September 2024	Not commenced	In perpetuity
Marshall Road	Wessex Water	Zone 1	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Mill Road (Water Only)	South East Water (Eastern)	03 Eastbourne	Water Only	Not Determined	Not commenced	In perpetuity
Marlborough Park (2)	Thames Water	SWOX	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Ashmead Drive	Severn Trent Water	Strategic Grid WRZ	Water and Sewerage	4 th October 2024	Not commenced	In perpetuity

Nash Road	Southern Water	Kent Thanet (KTZ)	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Bishops Lane	South East Water (Eastern)	02 Haywards Heath	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Beaulieu Park	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	26 th September 2024	Not commenced	In perpetuity
Pomeroy Place	South West Water	Wimbleball WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Newhall (3A)	Affinity Water (Central)	WRZ6 Wey	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Himley Village	Thames Water	SWOX	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Hullavington	Wessex Water	Zone 1	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Una Road	Affinity Water (East)	WRZ8 Brett	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Dunton Road	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Tattenhoe (5)	Anglian Water	Ruthamford	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Beauchamp Gate	South East Water (Eastern)	02 Haywards Heath	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Tattenhoe (7)	Anglian Water	Ruthamford	Water and Sewerage	Not Determined	Not commenced	In perpetuity

Audley End	Affinity Water (Central)	WR5 Stort	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Waltham Road	South East Water (Western)	04 Bracknell	Water Only	Not Determined	Not commenced	In perpetuity
Knights Road	Thames Water	SWOX	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Lady Grove	Thames Water	Hagbourne Hill	Water and Sewerage	Not Determined	Not commenced	In perpetuity
St Anns Hospital	Thames Water	London	Water and Sewerage	Not Determined	Not commenced	In perpetuity
District Centre (D)	Thames Water	SWOX	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Heybridge (5)	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Gilda Terrace	Anglian Water	Colchester Bures	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Westwood Heath	Severn Trent Water	Strategic Grid WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
The Steeds	Thames Water	SWOX	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Hart Road	Essex and Suffolk Water	Essex WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
The Folley	Anglian Water	Essex South	Water and Sewerage	Not Determined	Not commenced	In perpetuity

Farleigh Road	Bristol Water	Bristol WRZ	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Foster Close	Essex and Suffolk Water	Northern Central	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Coxbridge Farm	South East Water (Western)	WRZ5: Farnham	Water and Sewerage	Not Determined	Not commenced	In perpetuity
Ermine Street	Anglian Water	Ruthamford South	Water and Sewerage	Not Determined	Not commenced	In perpetuity

Table 1.1: Leaf Water NAV Applications as of 4 October 2024

1.4. Leaf Water's Approach to Water Resources

Leaf Water do not own or operate water sources. All supplies are through bulk connections from the local incumbent water company. Once our appointment has been granted the local water company is no longer the incumbent and therefore, we refer to them as the Supplying Water Company as this reflects the business to business relationship created by the BSA.

Leaf Water have negotiated BSAs with the Supplying Water Companies for each of our appointments. These agreements are designed to secure adequate supplies for our customers throughout the 25-year planning period, including providing sufficient headroom to allow for uncertainties in demand forecasts.

The supply volumes agreed upon in the BSAs are annual averages covering periods of both higher and lower demand throughout the year. Customers will face no greater risk than if supplied directly by the incumbent. We are confident in the WRMPs of the respective Supplying Water Companies who have suitable mitigation measures in place to address any forecasted deficits.

1.5. Leaf Water's Targets

As a NAV we do not have the option to increase our supply; therefore, our focus is on reducing demand. Our WRMP highlights two key target areas: water efficiency and leakage.

Our goal, in line with the wider water supply industry, is to achieve a per capita consumption (PCC) of 110 litres per head per day (110 l/h/d) or less by 2050. Leaf Water are committed to achieving high levels of water-use efficiency. This involves formulating a long-term strategy with both developers and customers aimed at reducing water consumption in new residential and commercial properties. This strategy will involve innovative approaches and the development of strategic policies to:

- a. Achieve the Environment Improvement Plan¹ targets of 122l/h/d by 2037-38 and 110l/h/d by 2049-50. While also exploring further opportunities to achieve additional reductions in consumption. Many of our proposed sites are already designed to meet the 110l/h/d target.
- b. Collaborate with the Supplying Water Companies and contribute to regional water resource planning. We are developing these relationships through monthly meetings with Supplying Water Companies regarding the BSAs and Water Resource Planning.
- c. Negotiate BSAs that incorporate appropriate allowances for headroom.

¹Environmental Improvement Plan, Defra, 2023

- d. Promote efficient water use through customer campaigns.
- e. Install Advanced Metering Infrastructure (AMI) smart meters on all sites. These meters will connect to our meter data management system, providing readings every 15 minutes. This allows us to quickly identify and address any alarms, significantly reducing leakage from water fittings and supply pipes compared to using data from the biannual meter readings which is the common standard for Supplying Water Companies.
- f. Promote rainwater recycling for watering gardens through customer focussed initiatives.
- g. Encourage the further reduction of per capita consumption targets and the selection of water efficient water fittings in all our discussions with developers in line with regional planning requirements.
- h. Provide average billing information to customers showing a comparison with their usage.
- i. Make smart meter data available to customers through a dedicated customer portal.

Our leakage target for our networks is 4.5% or less, with a stretch goal of 2%. We are committed to making progress toward this stretch target during this WRMP period. We will proactively manage all identified leakage and replace leaking supply pipes at no cost to customers in most cases.

1.6. Security Considerations

As a NAV company reliant on supplies from other water companies, Leaf Water regularly liaise with the Supplying Water Company regarding water security considerations. We model our water demand requirements before agreeing to a BSA.

Our considerations encompass both infrastructure we own and that over which we have control. On NAV Areas still under development, access is strictly controlled by the developer with all visitors required to sign in and wear visible ID tags. These measures help to protect our operations against any deliberate attempts to sabotage water supplies.

Section 2. The Requirement for and Background to Water Resource Management Plans

2.1. National and Regional Context

We understand the important role that we play as a NAV in contributing to the delivery of government targets and aligning with regional and supplier company water resources management plans. Our WRMP is being developed to take account of the national and regional context for water resources planning.

The government's paper setting out a National Framework for Water Resources is the key policy document² that explores England's long term water needs, setting out the scale of action needed to ensure resilient supplies and an improved water environment. The Framework establishes the role of regional water resources planning and instructs regional groups to develop plans that will reduce demand to 110 litres per person per day by 2050 and halve leakage rates by 2050, along with implementing supply side measures. In addition to the National Framework, the government's Environmental Improvement Plan (EIP), published in January 2023, sets out additional interim targets for leakage, PCC and non-household water usage which are reflected in the revised and final regional plans.

We expect over time to have sites that operate across the majority of the regional groups, but for this draft WRMP our sites fall either within the Water Resources East area (Abbots Vale and Heybridge (4)) or the Water Resources South East area (Lenham). Both the WRE plan³ and the WRSE plan⁴ rely heavily on demand management to address significant forecast deficits in public water supply. In the WRE region the demand side measures are expected to meet almost half the identified deficit (332 MI/d of a 730 MI/d deficit), with household demand forecast to reduce from 135 litres per person per day to 110 l/p/d in 2050. Member companies are expected to reduce leakage by 39% versus the 2017/28 baseline by 2050, contributing to the target set out in the national framework. In the WRSE region, the plan commits to the reduction of leakage by 20% by 2027; 30% by 2032 and 50% by 2050. It also set outs targets for lowering customer consumption by 9% by 2027; 14% by 2032 and 20% by 2038, aligned with the target of 110 l/h/d by 2050. These targets are consistent with those set out in the EIP.

We see our role as vitally important in contributing to meeting the demand management measures set out in the regional plans. The implementation of robust demand management strategies utilising smart meters, leakage reduction and customer water efficiency measures

² Meeting our future water needs: a national framework for water resources, Environment Agency, 2020

³ Regional Water Resources Plan for Eastern England, WRE, 2023

⁴ Revised Draft Regional Plan Water Resources South East, WRSE, 2023

throughout the 25-year planning period will be key. Due to our network being new and leakage levels being at an already low level we do not consider the specific leakage percentage reduction targets to be directly applicable. However, by keeping our leakage levels as low as possible we will be contributing to the overall achievement of the targets across each region and nationally. As described later in this document, we are committed to aligning with the 110 litres per person per day target and will, where possible, aim to drive demand down further than this.

We issued our WRMP pre-consultation document to the regional groups as part of preparing this draft. We will continue to liaise with regional groups throughout the planning period and in the lead up to the development of the next regional plans to ensure our WRMP remains aligned and contributing the most value possible to the overall regional strategies.

2.2. The Role of a WRMP

A water resources management plan sets out how a water company intends to maintain the balance between the supply and demand for water over a 25-year period. It shows how the company expects the demand for water to grow over the planning period within its appointed areas and how it plans to meet those forecast demands.

2.3. Legal Requirements

The Water industry Act 1991 (as amended) requires water undertakers to prepare and maintain a WRMP. Defra and the Welsh Assembly Government expect the water companies in England and Wales to follow sections 37A-D of the Water industry Act 1991, the WRMP Regulations 2007 and directions given by government. Our compliance to the WRMP (England) Direction 2022, is summarised in Appendix 1.

The statutory process sets out defined stages for consultation. The three principal stages are:

- Pre-draft consultation with statutory consultees and licensed water suppliers.
- Consultation with the Environment Agency's regional planners and Ofwat during the preparation of the draft WRMP.
- Consultation following publication of the draft WRMP with specified organisations, customers, and others likely to be affected by the plan.

The company is required to produce a 'Statement of Response' to stakeholders' comments on the draft WRMP setting out:

- The consideration we have given to those representations.

- Any changes that have been made to the draft WRMP because of these considerations.
- An explanation of where changes have not been made following the consultees comments.

2.4. Timescales

Newly appointed water companies in England and Wales have a statutory requirement to prepare a draft WRMP within 6 months of appointment and then every five years thereafter; Our draft WRMP must be submitted by 16 October 2024 and the final plan is expected to be submitted for approval to the Secretary of State in the spring/summer of 2025 following feedback from the consultation period and completion of our Statement of Response to any consultation comments.

As Leaf Water is a new NAV company, this draft plan has a relatively small number of sites included within it. Where further variations have been granted up to a date two months prior to the submission of the final WRMP, we will incorporate these additional NAV Areas into the final plan. Further NAV Areas are expected to be added regularly including during planning periods, so it is expected that the plan will grow over future iterations.

2.5. Consultation

The statutory process for the preparation of WRMPs sets out defined stages for consultation as described above in Section 2.3.

During the spring and summer of 2024, Leaf Water undertook pre-consultations with:

- The Water Services Regulation Authority (OFWAT)
- The Environment Agency (EA)
- The Supplying Water Companies:
 - South East Water
 - Anglian Water
 - Essex and Suffolk Water

Following submission of our draft plan to the EA and the Secretary of State, we will consult on our plan with the following statutory and non-statutory consultees:

- The Water Services Regulation Authority (OFWAT),
- Natural England,

- The Drinking Water Inspectorate (DWI),
- The Consumer Council for Water (CC Water),
- The Supplying Water Companies from which supply is being taken from,
- Other interested parties via our website.

In future iterations of our WRMP, our customer base will also be consulted. The full consultation of our draft plan with these stakeholders will last for just over 8 weeks and will be followed by an assessment of any comments and the publication of a Statement of Response as per regulatory requirements, within 26 weeks of publication.

Any responses to this consultation should be sent to the Secretary of State using the following email or postal addresses using “Leaf Water WRMP” as the reference or subject:

Address:

Defra
Water Resources Management Plan Water Services
Department for Environment, Food and Rural Affairs
Seacole 3rd Floor
2 Marsham Street
London, SW1P 4DF

Email: water.resources@defra.gov.uk

cc. enquiries@leafwater.co.uk

2.6. Leaf Water’s Strategy

We negotiate our BSAs with Supplying Water Companies based on normal demand conditions (baseline) to ensure, at least theoretically, that there is no deficit in the supply-demand balance. Additionally, we incorporate a headroom allowance to mitigate risks related to customer demand and the performance of our water mains network. Details of our Supply & Demand Balance calculations are outlined in Section 3.

Our separate Drought Plan sets out the short-term operational steps we will take to maintain supplies in the event of a severe drought. Our Drought Plan is being submitted in draft for public consultation alongside this dWRMP. We will respond to any comments received and update our Drought Plan as we work towards finalisation.

2.6.1 Supply-Demand Balance

Our strategy for maintaining a positive supply balance focuses on managing demand given our limited influence on supply. The following outlines our proposals to ensure we have a full understanding of our demand and the necessary data to inform our actions to sustainably reduce demand in the long term.

- Monitor actual customer demand from the first householder occupancy on each of our developments.
- Track customer demand at the granular level using 15-minute meter readings.
- Monitor each site for unaccounted water during the construction phase and beyond. We have partnered with Aquam for metered standpipe services. Aquam monitors standpipe consumption at the individual hydrants on our network by incorporating GPS locators within their standpipes. We will engage with water suppliers and where possible, obtain granular bulk meter data to identify events that may constitute theft as well as to track leakage.
- Respond to customer meter alarms indicating customer side leakage. We will develop a process of engagement with customers in response to leakage alarms in a targeted and data led manner rather than the ‘blanket’ approach of campaigns.
- Compile accurate water network leakage data using granular meter data to identify and exclude approved standpipe use and unauthorised use of water. We will compare granular customer consumption data with granular bulk meter data from the water supplier where this is provided.
- Collaborate with Supplying Water Companies to unlock the benefits of granular bulk meter data to better understand the performance of water networks.
- Implement efficiency measures to reduce PCC to 110l/h/d target levels or less by working with customers and developers to influence behaviour. We will also provide granular consumption data available to empower customers to make their own consumption decisions.
- Proactively monitor our demand trends to anticipate challenges (supply-demand deficits) and surplus in a timely manner. We will take action where the supply-demand balance is projected to fall outside our target range in order to restore the balance using one or more of the following options:
 - Renegotiate the Bulk Supply Agreement to address a forecast supply-demand deficit
 - Renegotiate the Bulk Supply Agreement to release a forecast supply-demand surplus

- Implement further demand management measures if appropriate
- Further address customer side leakage if appropriate
- Further address network leakage in accordance with the defined action levels
- Re-evaluate our 'standard' headroom for leakage based on our actual network performance
- Re-evaluate our 'standard' headroom for customer demand based on actual customer consumption data
- Promote the use of water saving devices

2.6.2 Water Efficiency Strategy

We are committed to achieving high levels of water efficiency. This involves formulating a long-term strategy with developers to reduce water consumption on new domestic and commercial developments.

This strategy involves innovation and the development of strategic policies by:

- Encouraging our developer partners (Developer Direct) to achieve a high degree of water efficiency within their designs for individual properties and wider developments
- Encouraging a reduction in per capita consumption, especially in those areas that have not been constructed to a 110l/h/d standard
- Promoting the efficient water use in domestic properties by customers
- Developing customer communication and awareness of Leaf Water Codes of Practice to deliver reliable and sustainable supplies of water and wastewater services
- Implementing Automated Meter Infrastructure (AMI) for all domestic and commercial supplies
- Managing leakage to maintain low levels at or sites in line with or better than our financial model assumptions
- Considering environmental solutions and emerging technical solutions to meet specific water demand requirements for each NAV appointed development

Further details on demand management can be found in Section 3.

2.6.3 Water Meter Strategy

We are committed to 100% AMI metering as we feel this will be a differentiator in terms of water consumption and water efficiency. We will take the following approach to metering:

- All new build Household and non-household properties will have AMI meters installed as standard
- Any properties that are being retained and refurbished as part of a development plan will have AMI meters installed as standard
- There are currently no plans for us to inherit unmetered supplies, however, if this were to happen we would engage with existing customers regarding the benefits of opting for a metered supply. Any optants would have an AMI meter installed as standard
- We will consider the possibility of compulsory metering in the eventuality of any part of our estate being unmetered. Any compulsory metering program would install AMI meters as standard

We will continue to monitor advances in metering technology and whilst we currently propose to install AMI meters, we will evaluate emerging technologies and adopt them in the future where appropriate.

2.7. Levels of Service

Levels of Service represent an agreement between the water company and its customers, reflecting the reliability of the water supply in a given area. Given the nature of our operations, the supply of water to our Water Resource Zones is sourced from the regional water provider and the capacity of this supply is largely beyond our control and influence.

Once a Bulk Supply Agreement is in place, our Levels of Service will always align with those of the Supplying Water Company. Should we decide to source and treat our own water in the future, our goal would be to offer Levels of Service that exceed those provided by the local water company. Table 2.1 outlines the baseline levels we would aim for. Any opportunity for Leaf Water to deliver improved Levels of Service compared to the regional provider will be given full consideration, as this would be of significant benefit to customers. These objectives reflect our design aspirations and serve as a benchmark, they are not intended to create additional barriers to the development of our own water sources in the future.

Level	Action	Frequency of Implementation	Annual Risk of Restriction
1	Appeal for restraint	1 in 20 years	5%
2	Temporary use bans	1 in 100 years	1%
3	Drought orders	1 in 200 years	0.5%
4	Emergency Restrictions	1 in 500 years	0.2%

Table 2.1: Baseline Levels of Service

The success of water companies in consistently delivering their stated levels of service is intrinsically linked to the combined effectiveness of their Water Resource Management Plan and Drought Plan. These strategies are essential for managing water supply and demand, especially during periods of drought or water scarcity. While it is understood that completely eliminating the risk of restrictions is not feasible or economically viable, customers should anticipate occasional restrictions in line with the measures taken by regional suppliers. This collaborative approach helps ensure that water resources are managed sustainably and fairly across all customers.

The quantity of water supplied to us through the Bulk Supply Agreements varies across the water suppliers, however, it is always at least equal to our theoretical water demand calculations for the NAV Area, along with an additional calculated headroom. We will regularly review our agreements and monitor consumption trends to identify any instances where demand may exceed the available supply. Should this occur, we will take appropriate action to mitigate this as set out previously.

The Bulk Supply Agreements include provisions for the water suppliers to reduce the supply of water during times of drought. In doing so, the water supplier will neither favour nor deny service to us disproportionately to its own customer base and we will enact at least the same restrictions on our customers as they do on theirs.

We will continue to engage with each Supplying Water Company’s WRMP and Drought Planning Teams to ensure our understanding remains aligned with the reality of their operational delivery.

The following tables set out the Levels of Service that will apply for the three NAV Areas that were granted a licence prior to the agreed cut-off date of 28 May 2024. The figures are taken from the Supplying Water Companies Drought Plans.

Level	Action	Frequency of Implementation	Annual Risk of Restriction
2	Temporary use bans	1 in 10 years	10%
3	Non-Essential Use Bans	1 in 40 years	2.5%
4	Rota cuts	1 in 100 years up to 2025	1%
		1 in 200 years from 2025	0.5%

Table 2.2: Leaf Water’s Levels of Services for the Anglian Water Services Limited Region

Level	Action	Frequency of Implementation	Annual Risk of Restriction
2	Temporary use bans	1 in 10 years	10%
3	Non-essential water use restriction (drought orders)	1 in 40 years	2.5%
4	Application for permission (via drought permits/order) to vary abstraction licence conditions and quantities	1 in 50 years	2.0 %

Table 2.3: Leaf Water’s Levels of Services for the South East Water Limited Region

Level	Action	Frequency of Implementation	Annual Risk of Restriction
2	Temporary use bans	1 in 20 years	5.0%
3	Drought Order Ban	1 in 50 years	2.0%
4	Stand Pipes and Rota Cuts	1 in 250 years	0.4%

Table 2.4: Leaf Water’s Levels of Services for the Essex and Suffolk Water (as part of Northumbrian Water) Region

2.8. Stakeholder Engagement

Currently we undertake regular monthly meetings with the Supplying Water Companies' NAV teams and included within this is an update regarding the WRMP and Drought Plans of both companies. As part of our pre-consultation with the three Supplying Water Companies we have agreed to have quarterly meetings with the WRMP and Drought Planning teams once there is consumption in the relevant NAV Area. We are commencing these meetings in January 2025. These meetings will enable us to focus on the interlinked nature of our WRMP's and Drought Plans. This will include the analysis of real consumption data to determine how we can best use this to inform our understanding of water consumption and our approach to improved water efficiency. We look to the Supplying Water Companies to explore this with us collaboratively using our combined resources such as granular meter data (customer and bulk) to inform our decision making. This is intended to underpin our water resource management and ensure sufficient supplies for our customers.

We have recently been invited to, and have attended, the monthly EA Technical Advisory Group (TAG) meetings and we will continue to attend these to ensure we are involved in the discussions pertaining to WRMP29.

Of the five Regional Water Resource Groups we currently have licences within two of the areas (East and South East). We have provided pre-consultation information to each of these groups and invited further discussions. We will engage further ahead of submission of the final WRMP.

2.9. Non-Drought Hazards

As our water supplies are currently provided through Bulk Supply Agreements and we do not own any above ground water assets, the non-drought hazards to our water supply are minimal.

We have reviewed the following potential hazards set out in the 2013 UKWIR Guidance⁵:

- Freeze-Thaw
- Landslip/Subsidence
- Third Party – for example emptying inappropriate material into manholes
- Geological Processes
- SEMD Hazards

⁵ UKWIR Managing through Drought: Code of Practice and Guidance for companies on water use restrictions 2013

We concluded that these all presented a very low risk to our supply resilience. With regards to SEMD hazards, our assessment relates solely to our infrastructure as the Supplying Water Company is responsible for assessing and addressing the risks to their infrastructure within their own WRMP.

2.10. Greenhouse Gas Emissions

We recognise the challenges involved in reducing our environmental and societal impact, particularly in terms of greenhouse gas emissions. In line with the water sector's commitment through Water UK, we are dedicated to achieving net zero operational carbon by 2030. Within the water sector, carbon dioxide (CO₂) makes up the majority of emissions, and we are committed to reducing these through sustainable practices.

Water Operations - Our water operations do not currently involve abstraction, treatment, storage or pumping of clean water. To assess the carbon cost of water production, we have considered a study by Danfoss⁶, which suggests an average carbon emission of 1.74kg CO₂ per cubic meter of potable water. We will monitor the carbon cost at each site and across our entire company in order to understand the magnitude of our contribution.

Materials - Our water networks are usually constructed using polyethylene pipes. While manufacturers assess the greenhouse gas emissions associated with the production and transportation of these products, we have an ongoing responsibility to challenge ourselves to assist in reducing these emissions.

Travel - Currently, we do not have any company vehicles, meaning there are no company level emissions from travel. We have working practices that significantly reduce the need to commute to an office or place of work, which in turn lowers the greenhouse emissions of our team. While site inspections do require some travel, the associated emissions are considered negligible. When travel is necessary, our staff are encouraged to use trains instead of cars as well as car sharing to minimise the emissions from their journey wherever feasible.

Overall, we assess our contribution to greenhouse gas emissions to be negligible, however, we will continue to evaluate this regularly as the business grows. We will consider any existing water industry initiatives to reduce greenhouse gas emissions and how they could be implemented by Leaf Water effectively as part of our journey to net zero. Furthermore, we will actively engage in discussions on potential future initiatives within the industry and remain committed to implementing those initiatives that will collectively help us achieve the target of net zero operational carbon at Leaf Water.

⁶ Danfoss 2021 – The Carbon Footprint of Potable Water

2.11. Climate Change

Climate change is predicted to lead to wetter winters and hotter, drier summers along with an increase in frequency and intensity of extreme weather events. These changes are expected to impact the availability of water in the future and recognition of this is fundamental to the development of an appropriate WRMP. The supply decisions regarding climate change are taken by our Supplying Water Companies, and their choices will determine the way forward for their regions in terms of adapting to the anticipated impacts of climate change on the supply side of the supply-demand equation. Demand is also influenced by climate change, and we have modelled several scenarios that take these changes into account. Further details can be found in Section 3.

2.12. Current Situation Regarding Development of Supply Areas

There are currently no connections within our Supply Areas. Our first connection is forecast to be made in November 2024, so our current level of connections for all sites is nil. The table below sets out the final number of household and non-household connections for each supply area where the licence was granted prior to the agreed cut-off date of 28 May 2024.

Site Name	No. of Household connections		No. of Non- Household connections	
	Current	Final	Current	Final
Lenham	0	136	0	0
Abbots Vale	0	1049	0	4
Heybridge 4	0	234	0	0
Total	0	1419	0	4

Table 2.5: Current and Final levels of development at Leaf Water NAV Areas

2.13. The Scope of the Plan

Our WRMP has been developed in accordance with the relevant guidance, and its main components are:

- Undertaking a problem characterisation approach to identify and gauge the resilience of our supply-demand balance
- Creating a baseline forecast of demand for at least the next 25 years based on a projection of Leaf Water’s connections using the dry year annual average
- Developing a baseline forecast of supply for at least the next 25 years based on the WRMPs of the water supply companies

- Preparing an initial baseline supply-demand balance for at least the next 25 years to establish whether there is an anticipated deficit or surplus in each of those years
- Assessing the demand management options and presenting a cost-benefit appraisal justifying the proposed preferred solutions
- Preparing a final baseline supply-demand balance for at least 25 years post mitigation, establishing whether the proposed solutions are anticipated to mitigate any forecast deficit
- Applying scenario testing to the final baseline supply-demand balance to establish an appropriate headroom for demand

Currently, our NAV water supplies are provided through BSAs. It is considered unnecessary to carry out a deployable output assessment, or an assessment of how sustainability reductions might affect supplies, as these risks are managed by the Supplying Water Company. It is our understanding that, during periods of drought, our customers will share the impact of any supply restrictions equally with the customers of the Supplying Water Company.

2.14. Meeting Government and Regulator Expectations

We understand the important role that we play as a NAV in contributing to the delivery of government targets and aligning with regional and supplier company water resources management plans. Our WRMP is being developed to take account of the national and regional context for water resources planning.

The government's paper setting out a National Framework for Water Resources is the key policy document that explores England's long term water needs, setting out the scale of action needed to ensure resilient supplies and an improved water environment. The Framework establishes the role of regional water resources planning and instructs regional groups to develop plans that will reduce demand to 110 litres per person per day by 2050 and halve leakage rates by 2050, along with implementing supply side measures. In addition to the National Framework, the government's Environmental Improvement Plan (EIP), published in January 2023, sets out additional interim targets for leakage, per capita consumption and non-household water usage which are reflected in the revised and final regional plans.

The EIP includes the following national level targets which are relevant for the production of our WRMP:

- Reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting figures, by 31 March 2038, with interim targets of 9% by 31 March 2027 and 14% by 31 March 2032
- Water companies to reduce leakage by 50% by 2050, with interim of 20% by 31 March 2027 and 30% by March 2032

The successful implementation of our demand management strategies will ensure we play an important role in contributing to the achievement of these national targets. As described in our demand management strategy, we are committed to aligning with the 110 litres per person per day target and will, where possible, aim to drive demand down further than this. Due to our network being new and leakage levels being at an already low level we do not consider the specific leakage percentage reduction targets to be directly applicable. However, by keeping our leakage levels as low as possible we will be contributing to the overall achievement of the targets regionally and nationally.

2.15. Problem Characterisation

We have undertaken a problem characterisation assessment in order to understand the scale and complexity of the planning problem as well as our vulnerability to strategic issues, risks and uncertainties. This has allowed us to develop a proportional response in terms of the effort and cost devoted to decision making related to water resources options. We have used the problem characterisation step of UKWIR's Decision Making Guidance⁷ to undertake the assessment for each of our Water Resources Zones. Where appropriate we have considered the impacts on Capital Expenditure (Capex) and Operational Expenditure (Opex)

There are two parts to the problem characterisation assessment:

- Part 1: Strategic needs (“How Big is the Problem?”) – a high level assessment of the scale of the need for new water resources and/or demand management strategies; and
- Part 2: Complexity factors (“How Difficult is it to Solve?”) – an assessment of the complexity of issues that affect investment in a particular water resources zone or area

The assessment has been carried out for each individual site, taking account of complexity of the planning issues within the Supplying Water Company's Water Resource Zone, the level of demand forecast for each site and the details of the Bulk Supply Agreements in place to secure supply for each site for the duration of the planning period. Expert judgement has been applied in assessing the severity of each element of the assessment for each site and the scores explained.

The first part of the problem characterisation stage entails three simple ‘headline’ questions that explore the size of any potential supply demand deficit and the cost (in relative terms) of the supply and demand management options. Three categories of risk are assessed:

⁷ WRMP 2019 Methods – Decision Making Process: Guidance, UKWIR, Report Ref. No. 16/WR/02/10

- **S** – Supply-side risks; Level of concern that customer service could be significantly affected by current or future **supply risks**, without investment
- **D** – Demand-side risks; Level of concern that customer service could be significantly affected by current or future **demand side** risks, without investment
- **I** – Investment programme risks. Level of concern over the acceptability of the cost of the likely **investment programme**, and/or that the likely investment programme contains **contentious options** (including environmental / planning risks)

The results for the first part of the problem characterisation assessment, Strategic WRMP risks, are set out below.

Supply-Side Risks - All supply-side risks are categorised as ‘no significant concerns’. This is due to the nature of the BSAs that are secured for each site. All the agreements have sufficient volumes to meet future forecast demand and the agreements are in perpetuity. Therefore, despite supply-side risks associated with upstream Supply Water Companies WRZ’s which supply the NAV Areas, the nature and volumes associated with the agreement mean that there are no direct supply-side risks to Leaf Water customers and therefore no significant concerns are identified across the planning period.

Demand-Side Risks - The demand-side risks for Abbots Vale, Lenham and Heybridge are categorised as ‘no significant concerns’, as the scale of growth across all the sites does not increase demand to a point where it drives a deficit, with the planned baseline demand management activity such as installing AMI meters as standard.

Investment Risks - The investment programme does not include options where the cost is contentious or there are contentious options from a planning perspective, therefore this has been scored as ‘no significant concerns’.

Site Name	S. Score	D. Score	I. Score
Abbots Vale	No significant concerns = 0	No significant concerns = 0	No significant concerns = 0
Lenham	No significant concerns = 0	No significant concerns = 0	No significant concerns = 0
Heybridge (4)	No significant concerns = 0	No significant concerns = 0	No significant concerns = 0

Table 2.6: Summary of Risks

The second part of the problem characterisation is an assessment of the ‘complexity factors’. The purpose of this is to explore the nature of the risks and vulnerabilities that exist within the WRMP, with a particular emphasis on identifying whether these complexities, in

combination with the level of strategic risk, indicate that methods beyond the Economics of Balancing Supply and Demand may be required when assessing options.

Supply-Side Complexity factors:

- S(a) Are there concerns about near term supply system performance, either because of poor understanding of system reliability / resilience under different or more severe droughts than those contained within the historic record? Is this exacerbated by uncertainties about the benefits of operational interventions contained in the Drought Plan?
- S(b) Are there concerns about future supply system performance, primarily due to uncertain impacts of climate change on vulnerable supply systems, including associated source deterioration (water quality, catchments etc) in the near or medium term that are currently very uncertain?
- S(c) Are there concerns about the potential for 'stepped' changes in supply (e.g. sustainability reductions, bulk imports etc) in the near or medium term that are currently very uncertain?
- S(d) Are there concerns the 'DO' metric might fail to reflect resilience aspects that influence the choice of investment options (e.g. duration of failure), or are there conjunctive dependencies between new options (i.e. the amount of benefit from one option depends on the construction of another option). These can both be considered as non-linear problems.

All sites have been categorised as 'no significant concerns' (Score = 0) for S(a), S(b), S(c) and S(d) as the supplies to the sites are based on Bulk Supply Agreements which will not be affected by upstream supplier supply system performance concerns.

Demand-Side Complexity Factors:

- D(a) Are there concerns about changes in current or near-term demand, e.g. in terms of demand profile, total demand, or changes in economics/demographics or customer characteristics?
- D(b) Does uncertainty associated with forecasts of demographic / economic / behavioural changes over the planning period cause concerns over the level of investment that may be required?
- D(c) Are there concerns that a simple 'dry year / normal year' assessment of demand is not adequate, e.g. because of high sensitivity of demand to drought (so demand under severe events needs to be understood), or because demand versus drought timings is critical?

The demand forecast is the area of our supply demand balance calculations with the most potential uncertainty and complexity, due to potential variations in growth / build out rates,

occupancy and PCC which will only be able to be assessed once data from the sites including from smart meters has been gathered. For this reason, all three of the demand side complexity factors have been categorised as ‘moderately significant concerns’ (score = 1).

Investment Programme Complexity Factors:

- I(a) Are there concerns that Capex uncertainty (particularly in relation to new or untested technologies) could compromise the company’s ability to select a ‘best value’ portfolio over the planning period?
- I(b) Does the nature of the feasible options mean that construction lead time or scheme promotability are a major driver of the choice of investment portfolio?
- I(c) Are there concerns that trade-offs between cost and non-monetised ‘best value’ considerations (social, environment) are so complex that they require quantified analysis (beyond SEA) to justify final investment decisions?
- I(d) Is the investment programme sensitive to assumptions about the utilisation of new resources, mainly because of large differences in variable Opex between investment options?

The plan does not include any supply-side option investment and therefore we do not consider the investment in demand management options to be subject to any of the complexity factors described. For this reason, all four of the investment programme complexity factors have been categorised as “no significant concerns”.

Overall Problem Characterisation Assessment

Our overall assessment has concluded that it is not necessary to implement complex planning approaches in support of our WRMP.

Abbots Vale		Strategic Needs Score (How big is the problem?)			
		0-1 (None)	2-3 (Small)	4-5 (Medium)	6 (Large)
Complexity Factors Score (How difficult is the problem to solve?)	Low (<7)	X			
	Medium (7-11)				
	High (11+)				

Table 2.7: Abbots Vale Problem Characterisation Assessment

Lenham		Strategic Needs Score (How big is the problem?)			
		0-1 (None)	2-3 (Small)	4-5 (Medium)	6 (Large)
Complexity Factors Score (How difficult is the problem to solve?)	Low (<7)	X			
	Medium (7-11)				
	High (11+)				

Table 2.8: Lenham Problem Characterisation Assessment

Heybridge (4)		Strategic Needs Score (How big is the problem?)			
		0-1 (None)	2-3 (Small)	4-5 (Medium)	6 (Large)
Complexity Factors Score (How difficult is the problem to solve?)	Low (<7)	X			
	Medium (7-11)				
	High (11+)				

Table 2.9: Heybridge (4) Problem Characterisation Assessment

Section 3. The Supply-Demand Balance

3.1. Introduction

This section sets out the methodology we have used to calculate the supply-demand balance for each of the WRZs. This includes a confirmation of the available data and the assumptions we have made. The output of these calculations for each WRZ are presented in Section 4, along with any conclusions arising from this work.

These calculations are theoretical and will be revisited and validated as data on consumption and water supply becomes available during the build out of the developments. This review will be undertaken at least annually and will inform the next WRMP.

3.2. The Supply-Demand Balance

The supply-demand balance calculation is used to determine whether we, as a water company, have sufficient water supply to meet the anticipated demand from our customers. This calculation is undertaken for each NAV Area, which is usually a housing development.

Our supply is governed by a contract between us and the Supplying Water Company. We have requested a level of supply based on the anticipated demand, with additional headroom to account for identified risks.

Our initial demand is based on the projected build rate of properties within our NAV Areas and either the PCC currently specified in Building Regulations (125l/h/d), or the enhanced PCC (110l/h/d) where the planning authority has specified this as a condition of the planning approval.

Our final demand is based on the impact of deploying our demand management options to achieve 110l/h/d.

Our scenario testing evaluated the potential changes in demand due to climate change. This focuses on the potential impact of hot summers where PCC is anticipated to increase by 15l/h/d. We have not incorporated the potential impact of events such as COVID-19, as our NAV Areas are being developed post-pandemic, and based on historical trends, it is highly unlikely a similar event will occur again within the planning horizon.

We do recognise and take the learning from other companies who experienced COVID-19 supply demand variations and note that should a similar scenario occur there is likely to be an increase in household consumption and a decrease in non-household consumption⁸.

⁸ Economic Impacts of COVID19 on the Water Sector, WaterUK, 2020

3.3. Growth

We anticipate our business will grow rapidly within the planning horizon of this WRMP. To ensure that our supply-demand balance remains in surplus for each of our NAV Areas we will always request a water supply in line with the methodology set out in this WRMP. These are the building blocks of supply resilience for our customers that underpin our business. Whilst there is uncertainty regarding the size Leaf Water will grow to in the next 25 years, we will always expect to have a supply-demand surplus. Only once we are gathering consumption data will we be able to begin to validate our supply-demand balance. Analysis of customer demand as each development is built will provide a leading indicator of whether the supply will be sufficient on completion of the development. We will take action where it is subsequently forecast that the supply-demand balance will shift into deficit based on real consumption data. This may involve negotiating the supply contract, deploying demand management strategies, or both, in order to restore a surplus to the supply-demand balance.

3.4. Deployable Output

We do not own or operate any water supply sources of our own. Currently, all our water supplies are sourced through Bulk Supply Agreements with the Supplying Water Companies. All of the water supplied to Leaf Water is to meet customer demand and there are no onward transfers to other water companies at this time.

Our Bulk Supply Agreements with the Supplying Water Companies are for a volume and maximum flow of water relating to when the whole of the development has been constructed and occupied, therefore a significant surplus is anticipated during the build out phase of the development and this period will be utilised to assess the adequacy of the Bulk Supply Agreement. Additionally, we may have accounted for future development phases in the design of our water network, and this may also lead to a residual surplus on completion of earlier phases.

The following limits are set out in each of the Bulk Supply Agreements: maximum annual volume (m³/yr), maximum daily volume (m³/yr) and maximum instantaneous flow (l/s) and these are shown in the tables below by water supply company and NAV Area.

We use our own peaking factor for instantaneous flow, which is in line with the industry average. If the Supplying Water Company proposes a higher peak flow multiple, we will adopt their value as it provides increased certainty to us and our customers that demand will be met.

Site Name	Maximum Instantaneous flow l/s	Maximum daily volume m ³ /d	Maximum annual volume m ³ /yr
Lenham	1.6	Not specified	Not specified

Table 3.1: Agreed limits to bulk supply within the South East Water region

Site Name	Maximum Instantaneous flow l/s	Maximum daily volume m ³ /d	Maximum annual volume m ³ /yr
Abbots Vale	15.54	736.61	268,862.65

Table 3.2: Agreed limits to bulk supply within the Anglian Water Services Limited region

Site Name	Maximum Instantaneous flow l/s	Maximum daily volume m ³ /d	Maximum annual volume m ³ /yr
Heybridge 4	2.742	Not specified	32,028.75

Table 3.3: Agreed limits to bulk supply within the Essex and Suffolk Water (Northumbrian Water) region

There are exceptional circumstances when supplies could be reduced in cases of emergency or Force Majeure. Droughts are considered an emergency and any restrictions applied within the supplying WRZ by the Supplying Water Company will usually be expected to be applied to the supplied NAV Area by us.

Force Majeure is defined within the Bulk Supply Agreements and usually covers any circumstances beyond the reasonable control of either party. This includes strikes, lock-outs, an 'act of God', riot, civil unrest, terrorist activity, radioactive contamination, malicious damage, compliance with changes in law or a governmental order, changes in regulation, or fire.

3.4.1 Outage

An outage is a temporary, short-term loss of deployable output caused by unforeseen or unavoidable events affecting any part of the water supply system. A supply failure is typically considered an outage event if it lasts at least 24 hours. Interruptions lasting longer than three months are classed as a reduction in deployable output rather than an outage.

As we do not own or operate any above-ground water assets, we anticipate that any outage event will be upstream of the point of connection for the bulk supply and is therefore accounted for in the Supplying Water Company's assessment of water available for use (WAFU).

We maintain regular contact with the Supplying Water Companies and will arrange regular ongoing quarterly meetings with each discuss any change in risk. These meetings will also provide an ongoing link between the companies in the event of an outage.

3.5. Demand

Our water demand calculation is based on the following factors:

- Domestic PCC in line with Building Regulations or the developer's commitments
- The Estimated Occupancy Rate, explained further below
- The plot breakdown by house type
- An additional allowance for uncertainty in consumption is added to reflect the national average PCC of 142l/h/d⁹ over the last eight years. For example, for a NAV Area designed to a PCC of 125l/h/d, a headroom allowance of 14% would be added. We have chosen to use the national average rather than the average within the Supplying Water Company's region, as we assume that regional differences in consumption are unlikely to be directly reflected within the NAV Areas.

This is an interim approach, as we currently lack the data on which to forecast future consumption estimates for our areas. Gathering and analysing consumption data will be a key focus over the next five years and will enable us to set realistic targets for our NAV Areas, ideally at a company level, which will eventually replace any national or regional average consumption.

We will compare ourselves to the national and regional average for metered supplies as a measure of our success rather than a target. It is fundamental to our business to differentiate ourselves from the Supplying Water Companies and therefore we do not wish to be bound to their current performance standards.

- For this planning period, an additional allowance of 4.5% for leakage is included to account for the assumed worst case leakage scenario within the network. Our business model and sensitivity analysis recognise the uncertainty regarding leakage and its impact on the business. We have a number of internal trigger levels according

⁹ Statista.com Average household water usage per person per day in England and Wales 2016-2023

to the age of assets and that instigate management review and management action so as to control leakage within these parameters. Our operational target for leakage is 2% or less for assets less than 10 years old and 2.5% or less for assets more than 10 years old. Therefore, we believe the 4.5% allowance will not be breached except in cases of catastrophic failure of the main, typically caused by third-party damage.

- An additional allowance of 15% is added for scenario testing to reflect the climate change risk. This is a maximum value across the Supplying Water Companies as there is very little variation in reality and therefore it is deemed reasonable to have a companywide value.

3.5.1 Domestic Demand

Domestic demand is calculated as the product of the Dwelling Type, the Estimated Occupancy Rate¹⁰ and the specified per capita consumption (l/h/d) for the site.

Dwelling Type	Estimated Occupancy Rate
1 Bed Flat	1.27
2 Bed Flat	1.92
3 Bed Flat	2.47
1 Bed House	1.41
2 Bed House	2.13
3 Bed House	2.74
4 Bed House	3.43
5 Bed House	4.09

Table 3.4: Estimated Occupancy Rates

The government’s water strategy¹¹ for England sets out a vision for the year 2030 that includes ‘reduced per capita consumption of water through cost effective measures to an average of 130l/h/d by 2030, or possibly even 120l/h/d depending on new technological developments and innovation.’ All new housing is being built to at least the 125l/h/d standard and we will be closely monitoring actual consumption to see whether it aligns with the design.

¹⁰ Appendix 1 of Southampton City Council’s Nitrogen Mitigation Statement

¹¹ Future Water, Defra 2008

We will ask customers to confirm the number of people within their household so we can provide them with an accurate picture of their consumption versus this target. Once a baseline of actual consumption is established, we will be able to develop appropriate targets to reduce consumption further, first and foremost, in line with the Government's water strategy and then further reductions ahead of these targets. We are fully committed to achieving the water industry target of 110l/h/d or better by 2050.

For the demand forecasts we have used the average occupancy rate for the NAV Area. Build and sales rates have a high degree of uncertainty and likely variability and so the use of the average occupation rate for the whole development is assumed to be similar to the actual aggregated rate as the development build progresses.

3.5.2 Non-Domestic Demand

The number of non-household connections at full development in each of our NAV Areas has been set by the developers and can be seen in table 2.5. The number of non-household properties within our NAV Areas are minimal with two of the three having no non-household properties. Water demand estimates for non-household properties are based on the Use Class of the property and its Gross Internal Area (GIA). There is significant uncertainty here as even within some use classes, different business types can have a wide range of water demand requirements. Commercial demand is calculated separately for each WRZ and will be updated based on actual metered consumption in the future.

3.6. Water Efficiency

Water efficiency is an integral part of water resource planning, and we have a statutory duty to promote the efficient use of water. Key to this is support for customer behavioural change. We believe that it is important to support and assist customers with these changes and this will be the focus of our work during the period. This will include collaborating with the Supplying Water Companies and promoting our service level targets.

Developers are designing all new properties with water efficiency in mind and each property will be equipped with a smart meter. These smart meters will be continuously monitored for alarms, which will trigger follow-up actions. For example, we will investigate potential customer side leakage or contact customers to inform them if they are using particularly high how to monitor their consumption effectively.

We will develop a digital communication strategy for our customers that draws attention to the benefits of using water efficiently. This strategy will focus on education, advice and raising awareness. Any publications will be provided for free to our customers and will be available to view on our website ([Leaf Water](#)). We will consider including summer and winter newsletters to all our customers with our water bills. These would likely include details on

detecting leaks as well as water-saving tips. Our call centre agents will also be aware of the water efficiency sections of our website and will guide customers through leak detection techniques.

During the next 5 years, we will monitor and utilise site-specific consumption data to target the delivery of water efficiency messages to our customers according to their usage and any meter alarm indicators that are triggered. We will focus on water stressed areas, however, where appropriate, messages will be sent to customers in all areas. We will use subsequent metering data to evaluate the efficacy of these messages. During the event of drought and any restrictions to supply, we will align communications with the Supplying Water Companies to ensure that all customers experience equal restrictions.

3.6.1 Water Efficiency Activity

Water efficiency efforts will be driven by customer consumption data, trend analysis and alarm notifications. We will develop plans in the following areas to ensure we meet our target of 120l/h/d by 2030 and 110l/h/d by 2050.

- **Meter Data** – We are installing 100% smart metering (AMI) for all our new connections. We anticipate that AMI technology will help reduce customer usage by up to 10%.
- **Customer-Side Leakage Management** – AMI metering will provide granular data at 15-minute intervals, along with almost immediate alarm notifications. Analysis of this data enables early intervention in the event of customer side leakage, enabling proactive notifications to customers. For example, repairing or replacing a ‘leaky loo’ could result in a 6% reduction in consumption.
- **Distribution Leakage** – Our target is to keep distribution leakage as low as possible (below 4.5%), with trigger levels for action set at intermediate points between our operational target and the 4.5% upper limit. See Section 3.7 below for our methodology for leakage reduction.
- **Consumption Strategy** – Developing customer awareness and promoting the environmental and financial benefits of being water-wise is our primary focus. We will also work with developers within our framework arrangements to promote water-efficient options in the design of new homes. Additionally, we will support the Future Homes Standard through the Independent Networks Association (INA).
- **Water Smart Communities** – We are closely monitoring the progress of the Ofwat-funded project ‘Enabling Water Smart Communities’, and we will incorporate relevant initiatives from this project to achieve further reductions of water demand, working towards the 80l/h/d target outlined by the project.

3.6.2 Metering Activity

All our properties will be metered using Advanced Metering Infrastructure (AMI) technology, enabling the collection of highly granular consumption data. Currently, we have no water meters installed and therefore no data to analyse. However, we intend to be proactively involved in the proposed EA project for ‘improving approaches to demand forecasting’, which focuses on realising the benefits of smart meter data¹². While the benefits from this project are not anticipated to be fully incorporated into WRMPs until WRMP34, as a company with 100% AMI metering, we anticipate seeing these benefits much sooner.

It is our ambition to utilise the benefits of AMI data so as to understand the consumption in each NAV Area from the outset, as we expect to be able to filter out the ‘noise’ in the data arising from the construction process itself. This does rely on the Supplying Water Companies collaborating with us and the sharing between us of both customer and bulk meter data at a granular level.

It is important to recognise there are key differences between NAV Areas and the surrounding water region. All properties within our NAV Areas will be new and built to current modern standards of water efficiency. They will be built to the current Building Regulations standards or better with a maximum PCC of 125l/h/d. We expect the lower PCC of 110l/h/d to become standard, however, there is a tail end of development to which this will not apply, and this must be factored in. It can be seen in the difference between unmetered and metered consumption figures¹³ that metering demonstrably reduces household consumption. Our decision to instal cutting edge AMI metering is expected to significantly contribute to meeting water efficiency targets. There is no comparable data that we are aware of where a 100% of a District Metered Area (DMA) is AMI metered and has reached ‘steady state’. As such, Leaf Water believe we will be at the forefront of developing an understanding of how AMI can be leveraged to make efficient use of water the norm. This will be a core focus for us over the next 5 years.

3.7. Leakage and Unaccounted for Water (UFW)

Leakage and UFW occur in a number of ways. First and foremost, a degree of leakage from the distribution network is usually unavoidable. This may occur from storage facilities, transmission mains, distribution mains and communication pipes and is often referred to as ‘distribution’ or ‘company-side’ losses. Secondly, there may be leakage between the

¹² Smart Metering and Smart Networks for Leakage Management, 2019

¹³ Statista.com

customer's boundary (usually the meter location) and the customer's property, on the water supply pipe, this is sometimes referred to as 'Underground Supply Pipe Leakage' (USPL). Finally, there can be leakage on customer's internal plumbing. Supply pipe and internal plumbing leakage is often referred to as 'customer-side losses'.

Leakage is normally the largest component of losses from a water supply system, but it is not the only component. Any illegal connections will constitute real losses from the system while meter inaccuracies may give rise to 'apparent' losses. Together with leakage, these real and apparent losses make up the 'unaccounted for water' component (UFW).

Leakage performance can be expressed in several ways. Customer-side leakage is often expressed in litres/property/day while distribution leakage may be more appropriately expressed in m³/kilometre/day. The former allows for different densities of housing while the latter takes account of the length of distribution main from source works to customer. Leakage is also often expressed in terms of percentage of water put into distribution. All these indicators can be useful for comparing the performance of similar systems although care must be taken when comparing values from different systems or areas with widely varying characteristics. In our NAV applications we have set out our target rates for leakage at 2% of distribution input. We currently do not make an allowance for real or apparent leakage, and we will regularly monitor unaccounted for water over the next 5 years to ascertain whether allowances do need to be made in the future. The terms 'leakage' and 'unaccounted-for water' are often taken as being synonymous in the context of the supply-demand balance.

On the basis that we are only adopting and operating brand-new welded plastic pipe systems and all supplied properties are water efficient and metered, UFW rates less than 2% are assumed to be achievable. Our networks undergo stringent testing as part of the commissioning process ensuring that at day 0 the network is free of leaks.

As our distribution network ages, we expect to see leakage increase and we will endeavour to ensure leakage is managed proactively throughout the life of the assets. Our target leakage for assets over 10 years old is 2.5%, however, we will keep the actual leakage as low as practicably possible and are following relevant guidance to achieve this. We are offering to collaborate with Supplying Water Companies to assess UFW more accurately and we intend to share this data with our supply partners and create initiatives to mitigate UFW, where this is practical. We expect to be able to use this data in future WRMPs once it is demonstrated to be robust and of value and this knowledge will inform the decisions for future sites as our portfolio expands and will build our knowledge of actual network performance. We have assumed that we will be able to maintain distribution losses at less than 2% of distribution input towards the end of the planning period. This target for UFW does not include anything for meter inaccuracy.

Apparent losses will be challenging to identify and so are not currently included in the plan.

We currently intend to only adopt newly constructed networks and at present do not own or operate any pipeline systems. As we will mostly adopt pipes made from MDPE or HDPE, with quality controlled welded joints to connect pipes, we expect to achieve low levels of leakage. Our management of leakage follows industry best practice¹⁴¹⁵ to develop and implement a long-term leakage strategy during this five year period.

To maintain this, we will analyse and correlate the customer meter reads with the Supplying Water Company bulk meter reads. We are engaging with Supplying Water Companies to discuss the availability of granular bulk data, which will allow us to collaborate and gain a better understanding of UFW. This collaboration will enable us to share insights into how our smart networks operate and the benefits that can be gained from closely monitoring them. By identifying investigating anomalies, we will improve our ability to understand issues increase the chances of rectification. As stated previously, all our sites are at an early stage of development and are yet to be connected. Consequentially, meaningful assessments of unaccounted-for supply pipe background leakage and operational usage are difficult to make until sufficient metering data is available for analysis.

The Sensus AMI metering technology includes a number of warning alarms including alarms for leakage and bursts. It also allows for the identification of changes in patterns of use. Domestic leakage can be identified in near real-time as alarms are triggered and we will be developing algorithms to filter out 'false' alarms.

3.8. Target Headroom

Headroom is a planning allowance that is used to provide a buffer in the forecast supply-demand balance. Target Headroom is defined as follows, "the minimum buffer that a prudent water company should allow between supply (including raw-water imports and excluding raw-water exports) and demand to cater for specified uncertainties (except those due to outages) in the overall supply-demand balance. Introducing this into the overall supply-demand balance will help to ensure that the water company's chosen level of service can be achieved."¹⁶

Available headroom is the difference between demand and WAFU (the water available for use) at any given time. It will vary with time as demand increases, new supplies are brought on-line to meet rising demand and uncertainty grows the further into the future you go. If Available Headroom is greater than or equal to Target Headroom, then the desired level of service should be achievable. If Available Headroom falls below the target value, the water

¹⁴ Managing Leakage, UKWIR, 2011 (10/WM/08/42)

¹⁵ Impact of Customer Side Leakage Approaches, UKWIR, 2020 (20/WM/08/73)

¹⁶ A Practical Method for Converting Uncertainty into Headroom, UKWIR, 1998, 98/WR/13/1

company will face the risk of not achieving its stated level of service. For our NAV Areas we have calculated headroom as set out earlier to reflect the uncertainty in demand.

Our headroom assumption aims to incorporate the following factors and uncertainties:

- The risk that customer demand may exceed the property's designed water efficiency (per capita consumption)
- The risk that changes in local weather patterns could lead to unexpected increases in demand, such as hot summers or the use of hot tubs
- The risk that water efficient appliances and fittings might be removed or replaced

3.8.1 Effect of Climate Change

As noted earlier, we have not incorporated an increase in Target Headroom due to climate change into our supply model, since the water is supplied by a point of connection by the Supplying Water Company, who have undertaken these assessments. However, we have reviewed each Supplying Water Company's assessment of the impact of climate change within the Water Resource Zones (WRZ's) from which we are drawing supply and have included their findings in our projections and scenario testing. The agreed Bulk Supply Agreements currently have sufficient supply-demand surplus to accommodate the anticipated impact of climate change, however, this will continue to be reviewed and assessed at each 5 yearly iteration of the WRMP in the future. In addition, the contracted quantities within the BSA do not include for a change in demand that is a consequence of climate change.

3.8.2 Stress Testing

In order to ensure that our BSAs are sufficient to meet forecast demand, even under peak demand events, we have applied peaking factors to our demand forecast scenario. These peaking factors have been taken from the published Supplying Water Company's WRMPs, for the relevant WRZ. They have been calculated using industry standard methods that utilise real customer demand and Distribution Input data from the Supplying Water Company's network and take account of historical peak demand events which as those experienced during the summers of 2018 and 2022.

It is important to recognise the variation that can occur across each WRZ of the Supplying Water Companies due to factors such as seasonal tourist demand in coastal locations, where peaks can be significantly higher. We have carefully ensured that the peaking factors we are using are aligned with, and accurately represent, the nature of demand in the relevant WRZ.

In our ongoing regular engagement with the Supplying Water Companies, we will validate our approach to peaking factors.

Site	Supplier and WRZ	Peaking Factor applied
Abbots Vale	Anglian Water: Suffolk West and Cambs WRZ	1.302
Lenham	South-East Water: WRZ 6 Maidstone	1.282
Heybridge (4)	Essex and Suffolk: Essex WRZ	1.35

Table 3.5: The peaking factors applied to our demand forecast for each site.

3.8.3 Future Demand Scenarios

In addition to assessing peak demands, we have also undertaken scenario testing to account for potential variations in future demand. This includes:

- **Forecast variations driven by climate change**, in line with analysis undertaken by the Environment Agency and UKWIR in 2013¹⁷
- **Consumption targets specified in planning conditions** for developments not being realised through actual consumption data
- **The impact of demand management measures**, such as smart metering and customer communications on household consumption being less than anticipated

We have captured all three of these factors in one scenario by testing a ‘worst case’ high consumption scenario, using baseline measured household demand PCCs for each of the supplier WRZs. These PCCs all include an uplift for climate change variations, and by using measured data, this represents an increase compared with the forecast baseline PCCs for each site, which assume that consumption will benefit from the installation of smart meters and water efficient devices.

Were the scenarios to forecast a deficit, we do not consider this to represent an immediate risk to our security of supply. This is due to the fact that in the early years of the planning period, build out rates mean that site populations will steadily increase but will remain below the long-term expectation for the sites. This means that with close monitoring of actual PCC data there will be time to implement corrective action to manage PCCs back to our forecast baseline levels. In this scenario, we would work with our Supplying Water Company to design a set of interventions such as enhanced behavioural change campaigns. We would also consider the use of tiered charging structures in collaboration with the supplier.

¹⁷ Impact of Climate Change on water demand, UKWIR, 2013 (13/CL/04/12)

Section 4. Details of the Water Resources Zones

4.1. Introduction

The methodology and assumptions used to construct the supply-demand balance are described within Section 3. However, the balance itself is different for each WRZ, and some of the values used to estimate demand also vary. The detailed supply-demand balance for each WRZ is discussed in the following sub-sections. Each of our WRZs is supplied from a single existing WRZ of the Supplying Water Company. A Supplying Water Company's WRZ may contain more than one Leaf Water NAV Area in the future. It is possible that a NAV Area may be served by more than one Supplying Water Company, in which case a separate WRZ would be created for each supply.

As previously mentioned, all the sites discussed here are bulk supplies, with Agreements made in perpetuity to ensure continuity of supply. All domestic and non-domestic properties will be fully metered, with no unmetered properties.

Details of the pressures faced by the supplier companies within the relevant WRZ for each site have been assessed, based on the revised draft WRMPs for 2024. The pressures fall into five categories described below:

- **Growth** – Increasing demand for water driven by housing, population, and non-household growth
- **Climate Change** – The impacts of climate change reducing the available supply of water from the environment
- **1 in 500 Year Drought** – Achieving enhanced resilience to drought to become resilient to a 1 in 500-year event, meaning that customers will not be exposed to the most severe level of restrictions. Achieving this level of resilience reduced the deployable output available from water sources.
- **Licence Reductions** – The implementation of licence caps reducing the amount of water available to abstract from the environment
- **Environmental Destination** – Moving beyond licence capping to reduce the amount of water abstracted from the environment to achieve improvements in sensitive water environments

4.2. Anglian Water – Area 6: West Suffolk and Cambs

We currently have one Leaf Water NAV Area (Abbots Vale) within this resource zone. Anglian Water's West Suffolk and Cambs water resource zone has the following pressures on its supply-demand balance: growth, climate change, 1 in 500-year drought resilience, licence

reductions, environmental destination and they have planned demand and supply side schemes to mitigate these.

4.2.1 Abbots Vale (YAWIN001)

4.2.1.1 Introduction

Our Abbots Vale NAV Area is situated on the outskirts of Bury St Edmunds in the Anglian Water region. The development is still in the early stages of construction and first connections for Temporary Building Supply (TBS) and show homes are expected to take place by the end of 2024. The development will have 1,049 household properties and 4 non-household properties once completed in 2032. The NAV development is in a water stressed area and the properties have been designed and constructed to the 110l/h/d standard.

The site has some contamination and therefore the new water distribution network will consist of a mix of Polyethelyne (PE) and Barrier Pipe (BE) according to ground conditions. All properties will be metered in line with government policy. All meters will be Sensus 640C AMI enabled meters connecting to a fixed Lorawan network providing regular meter reads to our Meter Data Management System (MDMS).

The location and geographical area of the development are shown in figure 4.1 below.



Figure 4.1: NAV Area of Abbots Vale, Bury St Edmunds

4.2.1.2 Supplying Water Company Information

Bulk supply agreements have been reached with Anglian Water to supply the properties with 268,862.65 m³/year in perpetuity. Anglian Water has confirmed the downstream wastewater treatment works is Fornham All Saints Water Recycling Works. A Drinking Water Safety Plan (DWSP) has been developed for the site and Anglian Water have confirmed that there are no DWI legal Instruments in place in the upstream supply system as a consequence of risks to water quality.

4.2.1.3 Levels of Service

As described previously, our level of service and potential mitigation measures in the event of drought are aligned to the Supplying Water Company's LoS. As a result, these will be the same as Anglian Water's level of service shown in Table 2.2.

4.2.1.4 Supply-Demand Balance

As previously documented, this resource zone currently consists solely of Abbots Vale. The 1,049 domestic properties have been calculated to require 276.94 m³/day with 4 non-household properties using 31.00m³/day. The Bulk Supply Agreement with Anglian Water provides 736.61m³/day.

Leakage has been estimated and this estimate will be refined when customers move into the properties and network performance can be assessed.

No assumptions have currently been made with regards to void properties, if significant voids are present then this will lead to an increased supply-demand surplus. This will be assessed using metered consumption data, to produce a more accurate forecast going forward in the future.

A summary table of the balance when fully built and occupied is shown below in table 4.1.

Contribution	Daily Volume m³/day
Available Bulk Supply	736.61
Domestic Consumption	276.94
Non-domestic Consumption	31.00
Leakage	12.46
Headroom	83.08
Supply/Demand Balance	+364.13

Table 4.1: Abbots Vale Preliminary Supply Demand Balance

As the water distribution network ages, leakage will be closely monitored using the Supplying Water Company's bulk meter and individual property metering. If leakage is identified, then we will assign the appropriate resources to address any leaks. Given the uncertainty regarding demand when the area is fully operational, climate change has not been factored into demand estimates. We do not expect any significant changes due to these variables. Supply and demand have been forecast up until 2050.

4.3. Essex and Suffolk Water (Northumbrian Water) – Essex

We currently have one Leaf Water NAV Area (Heybridge 4) within this resource zone. Essex & Suffolk Water's Essex water resource zone has the following pressures on its supply-demand balance: growth, climate change, 1 in 500-year drought resilience, licence reductions, environmental destination and they have planned demand and supply side schemes to mitigate these.

4.3.1 Heybridge (YAWIN005)

4.3.1.1 Introduction

Our Heybridge NAV Area is situated on the outskirts of Maldon in the Essex and Suffolk Water region. The development is still in the early stages of construction and first connections for TBS and show homes are expected to take place by the end of 2024. The development will have 234 household properties and no non-household properties once completed in 2030. The NAV development is in a water stressed area and the properties have been designed and constructed to the 125l/h/d standard.

The site has no signs of contamination and therefore the new water distribution network will be Polyethelyne (PE) unless contamination is encountered during installation. All properties will be metered in line with government policy. All meters will be Sensus 640C AMI enabled meters connecting to a fixed Lorawan network providing regular meter reads to our Meter Data Management System (MDMS).

The location and geographical area of the development are shown in the map below.



Figure 4.2: NAV Area of Heybridge (4), Maldon

4.3.1.2 Supplying Water Company Information

Bulk Supply Agreements have been reached with Essex and Suffolk Water (Northumbrian Water) to supply the properties with 32,028.75 m³/year in perpetuity. Essex and Suffolk Water has confirmed the downstream wastewater treatment works is Maldon Water Recycling Centre. A Drinking Water Safety Plan (DWSP) has been developed for the site and Essex and Suffolk have confirmed that the following DWI legal Instruments are in place at the upstream assets as a consequence of risks to water quality.

DWI Notice or Undertaking Reference	DWI Notice or Undertaking Name	Parameters	Zone/ Asset	Asset Number
NES-2020-00005	Surface water catchments metaldehyde	P226, B010	Maldon	Z619
NES-2021-00002	Hazard Review	C001, C002, C111, A002, H063	Langford WTW	T003

Table 4.2: DWI Legal Instruments in place at Heybridge (4), Maldon

4.3.1.3 Levels of Service

As described previously, our level of service and potential mitigation measures in the event of drought are aligned to the Supplying Water Company's LoS. As a result, these will be the same as Essex and Suffolk Water's level of service and are shown in Table 2.4.

4.3.1.4 Supply-Demand Balance

As previously noted, this resource zone currently consists solely of Heybridge 4. The 234 domestic properties have been calculated to require 70.20 m³/day. The Bulk Supply Agreement with Essex and Suffolk Water provides 87.74m³/day.

Leakage has been estimated and this estimate will be refined when customers move into the properties and network performance can be assessed.

No assumptions have currently been made with regards to void properties, if significant voids are present then this will lead to an increased supply-demand surplus. This will be assessed using metered consumption data, to produce a more accurate forecast going forward in the future.

A summary table of the balance when fully built and occupied is shown below in table 4.3.

Contribution	Daily Volume m³/day
Available Bulk Supply	87.75
Domestic Consumption	70.20
Non-domestic Consumption	n/a
Leakage	3.20
Headroom	10.50
Supply/Demand Balance	+3.85

Table 4.3: Heybridge (4) Preliminary Supply Demand Balance

As the water distribution network ages, leakage will be closely monitored using the Supplying Water Company's bulk meter and individual property metering. If leakage is identified, then we will assign the appropriate resources to address any leaks. Given the uncertainty regarding demand when the area is fully operational, climate change has not been factored into demand estimates, nor have improvements in water efficiency. We do not expect any significant changes due to these variables. Supply and demand have been forecast up until 2050.

4.4. South East Water – WRZ 6: Maidstone

We currently have one Leaf Water NAV Area (Lenham) within this resource zone. South East Water’s Maidstone water resource zone has the following pressures on its supply-demand balance: growth, climate change, drought resilience, and environmental destination and they have planned demand and supply side schemes to mitigate these.

4.4.1 Lenham (YAWIN002)

4.4.1.1 Introduction

Our Old Ham Lane NAV Area is situated within Lenham in the South East Water region. The development is still in the early stages of construction and first connections for TBS and show homes are expected to take place by the end of 2024. The development will have 136 household properties and no non-household properties once completed in 2027. The NAV development is in a water stressed area and the properties have been designed and constructed to the 125l/h/d standard.

The site has no signs of contamination and therefore the new water distribution network will be Polyethelyne (PE) unless contamination is encountered during installation. All properties will be metered in line with government policy. All meters will be Sensus 640C AMI enabled meters connecting to a fixed Lorawan network providing regular meter reads to our Meter Data Management System (MDMS).

The location and geographical area of the development are shown in the map below.



Figure 4.3: NAV Area of Lenham, Kent

4.4.1.2 Supplying Water Company Information

Bulk Supply Agreements have been reached with South East Water to supply the properties with 50,457.60 m³/year in perpetuity. South East Water has confirmed the downstream wastewater treatment works is Harrietsham WwTW. A Drinking Water Safety Plan (DWSP) has been developed for the site and South East Water have confirmed that the following upstream asset has a DWI legal instrument in place due to risks associated with water quality as shown below in Table 4.4.

DWI Notice or Undertaking Reference	DWI Notice or Undertaking Name	Parameters	Zone/Asset	Asset Number
SEW-2021-00007	Tank Inspection Programme – Wellwood No.3 Reservoir.	Coliform bacteria Escherichia coli (E. coli) Enterococci Clostridium Perfringens Colony Counts Residual disinfectant (chlorine free and total)	Wellwood No.3 Reservoir	R578T02

Table 4.4: DWI Legal Instruments in place at Lenham, Kent

4.4.1.3 Levels of Service

As described previously, our level of service and potential mitigation measures in the event of drought are aligned to the Supplying Water Company’s LoS. As a result, these will be the same as South East Water’s level of service and are shown in Table 2.3.

4.4.1.4 Supply-Demand Balance

As previously documented, this resource zone currently consists solely of Lenham. The 136 domestic properties have been calculated to require 40.80 m³/day. The Bulk Supply Agreement with South East Water provides 138.24m³/day.

Leakage has been estimated and this estimate will be refined when customers move into the properties and network performance can be assessed.

No assumptions have currently been made with regards to void properties, if significant voids are present then this will lead to an increased supply-demand surplus. This will be assessed using metered consumption data, to produce a more accurate forecast going forward in the future.

A summary table of the balance when fully built and occupied is shown below in Table 4.5.

Contribution	Daily Volume m³/day
Available Bulk Supply	138.24
Domestic Consumption	40.80
Non-domestic Consumption	n/a
Leakage	1.84
Headroom	10.20
Supply/Demand Balance	+85.40

Table 4.5: Lenham Preliminary Supply Demand Balance

As the water distribution network ages, leakage will be closely monitored using the Supplying Water Company’s bulk meter and individual property metering. If leakage is identified, then we will assign the appropriate resources to address any leaks. Given the uncertainty regarding demand when the area is fully operational, climate change has not been factored into demand estimates, nor have improvements in water efficiency. We do not expect any significant changes due to these variables. Supply and demand have been forecast up until 2050.

Section 5. National Environment Programmes and Water Framework Directive

We will work closely with the Supplying Water Company as required in assessing the potential impact of licensed abstraction in designated or environmentally sensitive areas under the terms of the Habitats Directive; the Environment Agency's Restoring Sustainable Abstractions (RSA) programme, local environment programme sustainability investigations; biodiversity action plans; Catchments Abstraction Management Strategies (CAMS). However, given that we will not be operating any of its own water sources in this initial WRMP it is not considered to be a major issue requiring significant addressing within the plan.

Section 6. Strategic Environmental Assessment

In the preparation of our draft WRMP we have reviewed the guidelines relating to the completion of a Strategic Environment Assessment and Habitats Regulation Assessment¹⁸. Our plan does not include any schemes which will require development consent or have the potential to affect protected sites, therefore we have not undertaken an SEA for this plan.

¹⁸ UKWIR (2021) Environmental Assessments for Water Resources Planning

Section 7. Appendix 1 – Compliance with WRMP (England) Direction 2022

Below is a compliance matrix that confirms which matters to be addressed in a WRMP according to WRMP (England) Direction 2022 are not applicable to us as a NAV, or whether a response is included in this document.

Matter – 3 (1) a-n	WRMP Section or not applicable?
<p>a) the appraisal methodologies which it used in choosing the measures which it has identified in accordance with section 37A(3)(b) and its reasons for choosing those measures.</p>	<p>Our water demand reduction methodologies are set out in Section 3.</p>
<p>b) for the first 25 years of the planning period, its estimate of the average annual risk, expressed as a percentage, that it may need to impose prohibitions or restrictions on its customers in relation to the use of water under each of the following -</p> <ul style="list-style-type: none"> i. section 76 (b). ii. section 74(2)(b) of the Water Resources Act 1991(c); and iii. section 75 of the Water Resources Act 1991, and how it expects the annual risk that it may need to impose prohibitions or restrictions on its customers under each of those provisions to change over the course of the planning period as a result of the measures which it has identified in accordance with section 37A(3)(b). 	<p>The Levels of Service by for each NAV Area are included in Section 2.7 Levels of Service. An assessment of risk by SWC area is also included in Section 2.15 Problem Characterisation.</p>
<p>c) the assumptions it has made to determine the estimates of risks under sub-paragraph (b), including but not limited to drought severity.</p>	<p>This is set out in Section 2.15 Problem Characterisation.</p>

Matter – 3 (1) a-n	WRMP Section or not applicable?
<p>d) in respect of greenhouse gas emissions -</p> <ul style="list-style-type: none"> i. the emissions of greenhouse gases which are likely to arise as a result of each measure which it has identified in accordance with section 37A(3)(b) unless that information has been reported and published elsewhere and the water resources management plan states where that information is available. ii. how those greenhouse gas emissions will contribute individually and collectively to its greenhouse gas emissions overall. iii. any steps it intends to take to reduce those greenhouse gas emissions. iv. how these steps will support the delivery of any net zero greenhouse gas emissions commitment made by it: and v. how these steps will support delivery of the UK government’s net zero greenhouse gas emissions targets and commitments. 	<p>We have set this out in Section 2.10 Greenhouse Gas Emissions.</p>
<p>e) the assumptions it has made as part of the supply and demand forecasts contained in the water resources management plan in respect of—</p> <ul style="list-style-type: none"> i. the implications of climate change, including in relation to the impact on supply and demand of each measure which it has identified in accordance with section 37A(3)(b). ii. household demand in its area, including in relation to population and housing numbers, except where it does not supply, and will continue not to supply, water to domestic premises; and iii. non-household demand in its area, except where it does not supply, and will continue not to supply, water to non- domestic premises or to an acquiring licensee. 	<p>Our supply and demand assumptions for our NAV Areas are set out in Section 3.</p>

Matter – 3 (1) a-n	WRMP Section or not applicable?
<p>f) its intended programme for the implementation of domestic metering including—</p> <ul style="list-style-type: none"> i. the proportion of smart meters to other meters. ii. if it does not intend to install smart meters, the reasons for this. iii. its estimate of the cost of that programme, including the costs of installation and operation of meters; 	<p>Our domestic metering programme is set out in Section 2.6.3 Water Meter Strategy and 3.6.2 Metering Activity</p>
<p>g) its estimate of the total number of meters installed to record water supplied to domestic premises at the commencement of the relevant planning period and including a breakdown of—</p> <ul style="list-style-type: none"> i. the number of smart meters. ii. the number of meters that are not charged by reference to volume. iii. the number of meters that are charged by reference to volume including— <ul style="list-style-type: none"> (aa) optant metering. (bb) change of occupancy metering. (cc) new build metering. (dd) compulsory metering; and (ee) selective metering. 	<p>Our domestic metering programme is set out in Section 2.6.3 Water Meter Strategy and 3.6.2 Metering Activity.</p> <p>Total numbers are set out in our WRMP tables.</p>

Matter – 3 (1) a-n	WRMP Section or not applicable?
<p>h) its estimate of the total number of domestic premises which will become subject to domestic metering during the planning period and including a breakdown of—</p> <ul style="list-style-type: none"> i. the number of domestic premises with smart meters. ii. the number of domestic premises with meters that will not be charged by reference to volume. iii. the number of domestic premises with meters that will be charged by reference to volume including— <ul style="list-style-type: none"> (aa) optant metering. (bb) change of occupancy metering. (cc) new build metering. (dd) compulsory metering; and (ee) selective metering. 	<p>These estimates are set out in our WRMP Tables.</p>
<p>i) its estimate of the impact on demand for water in its area of any increase in the number of premises subject to domestic metering.</p>	<p>This is not applicable as we have no unmetered domestic properties in these NAV Areas.</p>
<p>j) its assessment of the cost-effectiveness of domestic metering as a mechanism for reducing demand for water by comparison with other measures which it might take to meet its obligations under Part III of the Act.</p>	<p>This is not applicable as all the properties in these NAV Areas will be metered.</p>
<p>k) its intended programme to manage and reduce leakage, including anticipated leakage levels and how those levels have been determined.</p>	<p>Leakage is set out in Section 3.7.</p>

Matter – 3 (1) a-n	WRMP Section or not applicable?
<p>l) if leakage levels are expected to increase at any time during the planning period, why any increase is expected and if so, the proposed plan of works that will be undertaken to mitigate this.</p>	<p>This is set out in the Section 3.7.</p>
<p>m) how its intended programme to manage and reduce leakage will contribute to—</p> <ul style="list-style-type: none"> i. a reduction in leakage by 50% from 2017/18 levels by 2050; and ii. any leakage reduction commitment it has made in respect of its appointment area. 	<p>This is set out in Section 3.7.</p>
<p>n) In respect of any relevant regional water resources plan—</p> <ul style="list-style-type: none"> i. how this plan has been considered and ii. reflected in its water resources management plan; or iii. where the plan has not been considered and reflected in its water resources management plan, the reasons for this. 	<p>This is set out in the Stakeholder Engagement Section 2.8 and also used in Section 2.15 Problem Characterisation.</p>

Table 7.1: Compliance Matrix

Section 8. Governance and Document Control

8.1. Security Statement

In publishing our draft Water Resource Management Plan and in accordance with Section 37 of the Water Industry Act 1991, this security statement confirms that no information has been excluded from our plan on the grounds of national security.

8.2. Commercial Statement

No exclusions have been made on the grounds of commercial confidentiality.

8.3. Version Control

Version	Date	Author	Reason for new version	Sections affected
0.1	07Mar24	Isabella Boucher	Initial framework	All
0.2	23Aug24	Craig Southway	Development of draft	All
0.3	11Oct24	Craig Southway	Review comments and finalisation of the draft	All

Approval – Signed



Iain Amis

Managing Director