Independent Water Networks

Water Resource Management Plan 2024

INDEPENDENT WATER NETWORKS LTD.

October 2024

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DOCUMENT CONTROL SHEET

Title:	Water Resource Management Plan 2024	
Release Date:	October 2024	Report Status: Final
Report Author:	Olivia Moreton, Water Compliance Team Leader	
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Related Reports:	IWNL: Drought Plan 2021	

STATEMENT OF ASSURANCE

IWNL's WRMP24 reflects and considers the relevant regional plans, national framework and relevant guidance and policy. The Board have engaged and overseen the development of WRMP24 which continues to meet our obligations to supply water and protect the environment.

Authorised:	October 2024 Charlie Thackeray, IWNL Director

1 INTRODUCTION

THIS WRMP

IWNL's 2024 WRMP utilises consultation feedback with a variety of stakeholders (as detailed in Section 2).

IWNL confirms that we have adequate provision on all development sites to cater for long-term planning horizons.

INDEPENDENT WATER NETWORKS LIMITED (IWNL)

Independent Water Networks Limited (IWNL) is a subsidiary company within the BUUK Infrastructure group of companies. We refer to these companies in the document as the "Group".

The Group is involved in project acquisition, management, design, construction, ownership, operation and maintenance of utility networks and associated site infrastructure, serving new developments throughout the UK mainland.

The Group focuses primarily on the new build market and is the leading independent utility and infrastructure provider in the UK.

The Group has broadly divided its activities between the regulated ownership of utility network assets and the unregulated provision of utility infrastructure and asset management services. The Group owns assets at many thousands of sites across England, Scotland and Wales which include gas, electric, water, wastewater, district heating and fibre networks.

INSET APPOINTMENTS

With the introduction of competition within the water industry, and following amendments to the Water Act 2003, the opportunity was created for the existing water and sewerage companies to be replaced by independent license holders.

New Appointments and Variations (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.

NAVs 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. IWNL have been granted operating license/appointments to provide water and wastewater services in place of the existing appointed Water Companies. Operating licences have been granted in areas previously supplied by Affinity Water Limited, Anglian Water Services Limited, Bristol Water Plc, Cambridge Water, Essex and Suffolk Water, Northumbrian Water Limited, Portsmouth Water, Severn Trent Water Limited, South East Water Limited, South Staffordshire Water Plc, Southern Water Services Limited, Thames Water Utilities Limited,

United Utilities Water Limited, Wessex Water Services Limited, and Yorkshire Water Services Limited. In this report, these areas are referred to as “inset areas”.

Note that the figures detailed in Appendix A, are taken directly from the bulk supply agreements signed by both companies.

IWNL continues to grow and will acquire new inset licences following publication of this plan. Sites won prior and up to December 2023 are included in this plan. As these licences are obtained, IWNL will update the WRMP24 Tables for NAVs and include this as a part of our Annual Reports, which will be available on our website. These tables will be updated to include the new inset licences data and forecast and as such will show key metrics such as the supply-demand balance.

IWNL’S APPROACH TO WATER RESOURCES

IWNL does not currently own or operate water sources. All our supplies are through bulk connections from the local incumbent water company. IWNL have negotiated bulk supply agreements with the incumbent water companies for each of the inset areas. These agreements are designed to secure adequate supplies for our customers throughout the 25-year planning period and include sufficient headroom to allow for uncertainties in demand forecasts.

IWNL are committed to achieving high levels of water-use efficiency. This will involve formulating a long-term strategy with developers to reduce water consumption on new domestic and commercial developments. This strategy will involve innovation and the development of strategic policies to:

a. Promote efficient water use in domestic properties;
b. Reduce in per capita consumption from the industry average of 139 l/p/d to the Government’s aim of 110 l/p/d for new homes;
c. Develop customer communication and an awareness of IWNL codes of practice to deliver reliable and sustainable supplies of water and wastewater services;
d. Implement the latest Automated Meter Reading (AMR) metering technology for all domestic and commercial supplies;
e. Manage leakage to maintain low levels at inset appointed sites;
f. Consider environmental solutions and water recycling strategies to meet specific water demand requirements for each inset licence appointed development;
g. Work with the Home Builders Federation and house developers to help reduce the PCC in our insets;
h. Explore water neutrality with the goal to reduce water usage and promote positive actions within the construction industry.

SECURITY CONSIDERATIONS

As an inset supplier reliant on supplies from incumbent suppliers, we have liaised with each of them about security considerations. Consequently, we are confident that they have robust security arrangements in place for their own infrastructure. Our considerations cover the infrastructure in our ownership or over which we have control; IWNL report annually on these SEMD requirements to DEFRA.

We do not own or operate any water treatment works or service reservoirs which might represent entry points for contaminants.

On sites that are still under development, site access is strictly controlled by the developer with all visitors being required to sign in and wear visible ID tags. These arrangements help to secure our operations against any deliberate attempts to sabotage water supplies.

2 THE REQUIREMENT FOR AND BACKGROUND TO WATER RESOURCES MANAGEMENT PLANS

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 twenty five-year period. It shows how the company expects the demand for water to grow over the planning period and how it plans to meet those forecast demands.

TIME SCALES

Water companies in England and Wales have a statutory requirement to prepare a WRMP every five years; this is approved by the Secretary of State in the Autumn in 2024.

CONSULTATION

PRE-CONSULTATION

Prior to publication of this Plan, IWNL consulted the Environment Agency and incumbent water companies as part of its compilation.

PUBLIC CONSULTATION

The statutory process for the preparation of water resources management plans sets out defined stages for consultation, and IWNL invited views from individuals and organisations on our plan, as detailed below.

- All of our customers
- The Environment Agency (EA)
- The Drinking Water Inspectorate (DWI)
- The Water Services Regulation Authority (OFWAT)
- CCW (formerly Consumer Council for Water)
- Natural England
- RAPID
- National Infrastructure Commission
- Anglian Water Services Limited
- Thames Water Utilities Ltd
- Severn Trent Water Limited
- Southern Water
- Affinity Water
- South East Water
- Wessex Water
- Yorkshire Water
- Bristol Water
- Cambridge Water
- Northumbrian Water
- Portsmouth Water

- South West Water
- United Utilities
- Regional Planning Groups.

The period of consultation was 8 weeks; it opened on 9th December 2022 and closed on 3rd February 2023. A non-technical guidance of the WRMP24 was made available on IWNL's website.

Based on this consultation, a Statement of Response has been produced, which is available on IWNL's website.

IWNL'S STRATEGY

IWNL has negotiated bulk-supply agreements with incumbent water companies with the intention of ensuring that no supply-demand balance is in deficit under baseline demand conditions. Risks for specific areas are considered in the supply-demand balance for each incumbent region which are detailed in section 3. IWNL's Drought Plans set out the short-term operational steps IWNL will take to maintain supplies in the event of a severe drought.

IWNL's Strategy for maintaining a positive supply-demand balance can be summarised as follows:

- Monitor actual demand as sites are developed to their full potential and develop a database of historic demand data to aid future demand planning.
- Implement a targeted programme of leakage monitoring and control (based on metering data) to maintain levels of leakage at or close to the economic level.
- Monitor available headroom to ensure that this does not fall below target headroom objectives.
- If available headroom falls below target headroom, consider options to eliminate the supply-demand deficit. This will entail one or more of the following:
    - Implement demand management measures if these have not yet reached their optimum level of performance.
    - Increase the quantities specified in bulk supply agreements.

BULK SUPPLY AGREEMENTS

If a bulk supply agreement is not suitable, IWNL engages with the incumbent water company and provides evidence as to why the volume requires adjustments. This process is expected to take 28 calendar days (20 working days) as per Ofwat's guidance for new appointments and variations.

LEVELS OF SERVICE

A water company's target level of service is the standard of service (effectively the reliability of supply) that a customer can expect to receive. It is a form of contract between a water company and its customers. A water company's success in delivering its stated levels of service over a period of time depends on the combined effectiveness of its WRMP and Drought Plan.

It is accepted within the water industry that it would not be economically justified, or environmentally sustainable, to develop long-term plans that removed completely the need to periodically introduce restrictions on customer's non-essential use during more extreme drought events. The target level of service is therefore the average frequency with which restrictions on water use is expected to be applied to customers. This frequency should be considered appropriate both in terms of customer expectation, impact on the environment, and cost implications.

The quantity of water to be supplied under the bulk supply agreements allow for unconstrained demand in each WRZ to be supplied both now and in the future. However, the agreements also allow for reductions in bulk supply to be applied during times of drought.

IWNL's levels of service are therefore effectively aligned to those of the incumbent water companies and the annual risk is unchanged throughout the planning period. These are the restrictions on water use that IWNL will apply as drought severity increases (categorised according to incumbent supplier). These can be viewed in Appendix B.

COMMUNICATION

Part of IWNL's strategy is maintaining effective communication with the incumbent water companies. IWNL attend regional water resource forums and hold regular liaison meetings with our Wholesale/NAV Manager at each incumbent water company. Water resources is a standard agenda item at all these meetings.

During times of dry weather events, communication is increased to ensure consistent customer messaging. For example, when IWNL are informed that the incumbent water company is planning a media campaign, IWNL will start liaising directly with the incumbent's water resources and drought management teams to ensure a consistent approach between both companies.

NON-DROUGHT HAZARDS CONSIDERED

IWNL's supplies are derived from bulk supply contracts and IWNL does not own any above-ground infrastructure on its clean water network. Having reviewed potential hazards (UKWIR 2013) on IWNL's network, the following were identified as presenting a very low risk to IWNL's supply resilience and have been factored into our calculations. Note that these are risks to IWNL's assets and infrastructure, not to the incumbent suppliers who will have included these risks in their own plans.

- Freeze-Thaw.
- Landslip/Subsidence.
- Third Party - emptying inappropriate material into washouts.
- Geological Processes.
- Security and Emergency Measures Directive Hazards.

GREENHOUSE GAS EMISSIONS

The majority of carbon emissions within the water industry are caused by above ground assets. To counterbalance the above ground assets, incumbents' net zero plans include the restoration native habits, installing greywater systems, and powering water treatments with the use of renewables.

IWNL obtains water from bulk supplies and does not abstract, treat, or store water. Due to this, IWNL has not taken this aspect into account when developing WRMP24. Any reduction in CO2 on demand management initiatives will be reflected in the incumbent's carbon plans. BUUK Environmental Policy Statement sets out our aim to be carbon neutral of areas under our direct control by 2040.

Appendix C outlines the incumbent's emissions per megalitres[1] and provides an estimate figure of emissions based on the bulk supply by incumbent and baseline total demand and headroom. The values outline in the table are included in the incumbents' plans. Incumbents have confirmed that they are committed to reducing the impact of carbon emissions over the planning period. IWNL understands the importance of reducing the impact of carbon emissions and as such will continue to work closely with incumbent companies to reduce carbon emissions.

IWNL installs polyethylene pipes, the production of greenhouse gases resulting from the manufacture and transport of these products is assessed by the manufacturer rather than the end-use to prevent double counting. Therefore, this has not been included in IWNL's supply side carbon emissions.

Consequently, IWNL assess our contribution of Carbon Dioxide equivalent emissions to be effectively zero tonnes.

CURRENT DEVELOPMENT OF SUPPLY AREAS

Appendix D details the expected number of connections at full development together with the actual numbers of connected customers at the end of December 2023 for all IWNL inset areas.

IWNL customers are being supplied via new infrastructure constructed to industry standards, therefore, IWNL views these assets to be at low risk of failure. IWNL's networks use polyethylene pipe (PE pipe) which has a service lifetime exceeding 50 years. Details on the risk associated with infrastructure age are excluded from this plan as it is outside the 25-year planning period.

1 Figures sourced from https://www.discoverwater.co.uk/energy-emissions for 2021-2022

THE SCOPE OF THE PLAN

The main components of a water resources management plan are as follows:

- A baseline forecast of demand for the 25-year planning period, assuming current demand policies.
- A dry year annual average has been considered within this plan.
- A baseline forecast of the available water supplies over the same period making assumptions about current resources and future known changes.
- From these forecasts, a baseline supply-demand balance is prepared by computing whether there is a water surplus or deficit in each year of the planning period.
- If there is a deficit, IWNL devises and selects water management solutions to make up the deficit.
- IWNL assesses the cost and benefits of a range of supply and demand options and provides justification for the proposed preferred solutions.
- Prepare a final-supply demand balance, taking the preferred water management solutions into account.

As stated in section 1, all the company supplies are bulk transfers, therefore there is no requirement to carry out a deployable output assessment, nor the associated assessment of how sustainability reductions or the impact of climate change might affect supplies. These risks are born by the donor company, although in times of drought IWNL customers will have to share the impact of any supply restrictions on an equitable basis.

3 THE SUPPLY-DEMAND BALANCE

INTRODUCTION

This section describes the general methodology used to compute the supply-demand balance, the data available and the assumptions made. Detailed balances for each of the WRZs covered by this plan are presented and discussed in section 4. These will need to be revisited as data on actual consumption and water delivery become available. Assumed or estimated values can then be substituted with actual data. The opportunity to do this arises with each annual review of the plan with a new and revised plan due after five years.

DEPLOYABLE OUTPUT

IWNL does not own or operate water supply sources of its own. All supplies are bulk transfers from the incumbent water companies. There are no exports out of IWNL supply areas.
In general, the quantity of water to be made available in each WRZ has been negotiated with the incumbent water company such that no supply-demand deficit is envisaged within the twenty five-year planning horizon. Quantities are based on estimates of the total water requirement (baseline demand and operating losses) in each inset area at projected final development, i.e., after all the currently proposed development is complete.

Quantities are defined in terms of an annual maximum volume in m^3/year, a maximum daily volume in m^3/day and a maximum instantaneous flow in l/s. Values are set out in separate bulk supply agreements between IWNL and incumbent water companies. These can be viewed in Appendix E.

When expressed as a daily rate, the maximum annual volume represents the average rate of transfer that can be maintained over the year. There are peaks of demand within this, normally in summer months and/or dry years when high temperatures lead to temporary highs in consumption. The maximum allowable daily transfer is at a higher rate than the annual volume in order to take these peaks into account.

The maximum daily and annual volumes will be supplied by incumbent water companies save in exceptional circumstances when supplies could be reduced. The incumbent water companies are entitled to reduce bulk supplies in cases of Emergency or ‘Force Majeure’. Droughts are considered an emergency.

FORCE MAJEURE

Bulk supply agreements held by IWNL have ‘force majeure’ clauses, some of which specifically mention droughts. It is believed that a drought would come under a force majeure clause.

IWNL have noted that where some incumbents list bulk supply agreements with water companies in their Draft Drought Plan, IWNL are not always included. Additionally, some incumbent Draft Drought Plans state volumes which are above our bulk supply agreements and are viewed as non-strategic to pursue in the event of a drought. Consequently, IWNL have not included reductions in bulk supply amounts in our Drought plan. However, as IWNL mirror the incumbent’s actions, including reductions during a Drought Level 4 event, the water

imported into IWNL's sites will reduce through self-imposed restrictions similar to that of a force majeure.

DRINKING WATER SAFETY PLANS

IWNL complete a Regulation 27/28 for each inset. The Drinking Water Safety Plans (DWSP) include an assessment of the risks associated with water resources such as "Disturbance of sediment" caused by low reservoir levels and poor turnover management. These risks, where applicable, are carried from source to tap and assessed at each stage of our network.

OUTAGE

Outage is a temporary, short-term loss in deployable output caused by unforeseen or unavoidable events affecting any part of the water supply system. The supply failure would normally last at least 24 hours before being considered a legitimate outage event. However, interruptions longer than 3 months would be considered reductions in deployable output rather than outage.

As IWNL do not operate any sources or treatment works, any outage events upstream of the point of connection for the bulk supply will therefore be considered in the incumbent company's assessment of WAFU, but not IWNL's. Any issues relating to the reliability of the bulk transfer are allowed for under Headroom.

The short-term loss in deployable output has been calculated by the average time a customer is without water in a year. This average is used to forecast the total deployable output for the twenty five-year planning period.

DEMAND

In line with Government policy, all new properties will be metered using the latest AMR metering technology for domestic and commercial supplies. IWNL's metering strategy is to continue to install AMR meters on new build properties. These meters are installed prior to consumers moving into the property, therefore there is 0 compulsory or selective metering within IWNL's plan.

Presently, IWNL does not plan to upgrade to smart meters due to the current cost/benefit ratio. IWNL operate in small pockets throughout England where economies of scale associated with installing communication infrastructure (AMI) to enable smart metering cannot be realised. The unit cost for implementing a smart metering programme is significantly higher than it is for incumbent water companies.

The benefits of no meters to smart meters are clear. However, there is little data available on the benefits of changing from AMR to smart meters. Once data is available on this, IWNL will re-assess the cost and benefits associated of smart metering.

100% of IWNL's properties have meters and all occupied properties are billed on measured consumption. Appendix D illustrates the number of properties that have been built to date.

Existing data on water consumption is heavily influenced by the significant volumes of water used during construction at each site for building supplies, batching plants, water mains testing, commissioning of wastewater networks, road sweeping, and gully cleaning.

A reasonable period of 'normal' consumption is needed, free from construction activities, before usable data on actual consumption can be obtained. In the meantime, demand must be estimated using industry-standard or average rates for the water industry as a whole, or typical values recorded elsewhere in the region, particularly in neighbouring areas.

Nevertheless, it is important to take account of key differences between inset areas and the surrounding region. For example, all properties in the inset areas are new and built to modern standards of water efficiency. Metering is generally believed to lower per capita consumption and so the fact that all properties in the insets will be metered is an important consideration.

DOMESTIC DEMAND

Domestic demand is estimated as the product of the number of properties times their occupancy (number of people per property) times the rate of per capita consumption (PCC – expressed in litres/person/day or l/p/d).

The Government's water strategy for England sets out a vision for the year 2050 which includes, *"Encouraging local authorities to adopt a tighter standard of 110 litres per person per day, compared with the current standard of 125 litres, for new homes where appropriate, requiring developers to install more efficient fixtures and fittings*." Further adding that *"These measures…will help meet the ambitions set out in the National Framework for Water Resources to reduce average personal water consumption to 110 litres per person per day by 2050."* (Defra 2021)

New housing (which forms the whole of IWNL's asset base) should be built to the current standards of either 125 l/p/d/ for non-water stressed areas and 110 l/p/d for water stressed areas, with the aim of reducing this to 110 l/p/d by 2050. For initial planning purposes we have assumed a constant PCC of 125 or 110 l/p/d for domestic demand throughout the planning period and used a weighted average by incumbent. This has been calculated based on measured, metered consumption in each zone. This reduces year by year to reach 110 l/p/d, for all sites by 2050.

PCC is reduced to reach the government's target of 110 PCC by 2050. This reduction occurs gradually in the 25-year planning period. It is expected that this reduction will not occur linearly as displayed in the forecast, but rather in steps due to innovation, changes of regulation, and implementation of new water saving devices alongside demand management.

The number of domestic connections at full development in each inset area has been defined by the developers, although there is uncertainty about the rate of development and when full build-out will be achieved. This will depend on the rate of house sales which in turn will depend to a large extent on the 'economic recovery' and the state of the national and local economy. For the purposes of demand forecast, an average build out rate has been used and applied to all insets. This rate will undoubtedly vary from year to year but as it is thought that the

development of new sources of supply within the planning period will not be necessary, the rate of house building is not critical unless more than one bulk supply connection needs to be made.

With the number of domestic and commercial properties at full development already known, the only uncertainty in numbers of population served is in the rate of occupancy. For planning purposes, we have used the UK average household size of 2.4 people per household (Ons.gov.uk, 2020).

The overarching IWNL strategy is to reduce per capita consumption (PCC) to the government's target of 110 litres per person per day. However, we recognise the value and importance of water efficiency in not only increasing water resource availability and reducing environmental harm, but also in improving affordability for end customers; an outcome which is of particular importance, given the current cost of living crisis. Therefore, in the coming five-year period, where possible we will seek to improve average PCC beyond these levels and will take steps to facilitate this through the following mechanisms: bulk meter telemetry, meter downloads, dedicated network performance team, our Bidwell innovation project learning, customer messaging/advice.

A selection of new sites were given a PCC target of 100 l/h/d. These sites have had water saving efficiencies installed into properties by the developer to reduce usage. Because of this, IWNL believes the 100 l/h/d PCC target is attainable. These sites will be monitored for usage throughout their construction and if any this target does not appear possible by 50% build out rate, then negotiations will begin with the incumbent to adjust the bulk supply agreement in accordance.

NON-DOMESTIC DEMAND

The number of non-domestic connections at full development in each inset area has been defined by the developers; the developments include a mix of both commercial and educational establishments.

Water demand in commercial developments is related to internal floor area and the number of people working or living there. The property mix can vary enormously, as can water consumption expressed per person or per square metre. Commercial demand has been forecast with the use metered consumption data and applying the average consumption per commercial property.

WATER EFFICIENCY

Water efficiency is an integral part of resource planning and IWNL has 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 key strand of our work during the period along with promoting our environmental policy objectives. All new buildings will be designed with water efficiency in mind.

Our company publication entitled "*Using water wisely at home*" sets out a programme of water efficiency initiatives that focus on education, advice and raising awareness. This publication

is provided free to every new customer and is available to view on the IWNL web site.
IWNL has a dedicated water resource webpage which provides water saving tips to domestic and non-domestic customers as well as information on the current drought level and associated advice/restrictions.

Our company issues Summer and Winter newsletters to all our domestic customers which include details on detecting leaks and water wise tips.
All bills include a table to show customers how their water consumption compares to industry averages for number of occupants, this additional information will enable customers to control their own usage.

Customer consumption from meter reads is monitored to either investigate for leakage or issue letters to customers advising that they are high users along with tips on being water wise.

Our website also has a water audit checklist, which customers can complete to view an estimation of their household's daily water usage. This information allows customers to clearly see how their water is being used and increases awareness of simple switches that can be made, to reduce their water usage.

Call centre agents are trained on how to discuss / direct customers to our water wise sections of the website and how to talk customers through leak detection techniques.

During the next five years, IWNL will monitor and utilise site-specific consumption data to target the delivery of water-efficiency messages to our customers in specific zones, including water stressed areas and use metering data to evaluate the efficacy of these messages.

LEAKAGE

Some degree of leakage from the distribution network is unavoidable. It may occur from storage facilities, transmission mains and distribution mains (often called 'distribution' or 'company-side' losses), or from service connections up to the customers' meter (sometimes called USPL or 'Underground Supply Pipe Leakage'). The latter are also 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. Illegal connections may 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 m^3/kilometre/day. The former allows for different densities of housing while the latter considers the length of the distribution main from source works to customer. Leakage is also often expressed in terms of % of water put into distribution. 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 inset application, IWNL has agreed target rates for ‘unaccounted-for-water’ of 5% of distribution input. Most of this will be leakage and the terms ‘leakage’ and ‘unaccounted-for water’ are taken as synonymous in the context of our supply-demand balance.

On the basis that that IWNL is predominantly constructing and operating new welded plastic systems and all supplied properties are new, water efficient and metered, UFW rates of around 4.5% are expected to be achievable. IWNL have therefore assumed that we will be able to maintain distribution losses at approximately 4.5% of distribution input towards the end of the planning period. The 4.5% is a target for losses which includes a potential 2% for meter inaccuracies as the meters age and 2.5% for pure distribution losses.

In order to meet this target towards the end of the planning period, if not sooner, the following strategies are being undertaken:

- Loggers - Installation of data loggers at the bulk supply meters at the site boundary to monitor consumption and flows. This enables real time leak detection, pressure changes, and site outages. We are proactively installing loggers at our live sites and will continue to roll this programme out to all live sites.
- Data - Logger data is used to estimate leakage per site per month. Our methodology explores the night-time flow and assesses water usage and leakage for each site. Our baseline level used per plot is lower than that used throughout the industry, this highlights leakage quickly.
- Review - We have internal targets as to the frequency individual loggers are assessed; this varies between sites. At a minimum, they are checked fortnightly.
- Investigation of leaks - Hydrophone loggers are deployed at sites where leakage has been identified through our night-time flow monitoring. The hydrophones are submerged within the water network which provides greater network coverage than the traditional accelerometers when used on plastic networks.
- Site Meter Reads – At a minimum, two full site meter reads will be undertaken each year.
- Leak Alarms - Our AMR meters have leakage alarms which indicates a current customer-side leakage. When the alarm is triggered, a leakage investigation is undertaken which includes collecting a meter download of consumption data and enables IWNL to quantify the size of the leak.

Our current assets are estimated to last 50+ years before faults are anticipated to appear. With this in mind and the still relatively new nature of these assets, it is not yet necessary to increase our leakage detection as having each property metered as well as meters at the site boundary allows for effective leak detection.

IWNL are also in the unique position of having 100% metering penetration. This enables IWNL to actively monitor our level of losses with real data rather than models of assumption. Any anomalies can be investigated and rectified. IWNL will also look to adopt a leakage maintenance strategy as our networks age. Eight top of the range, hydrophone noise loggers were purchased in October 2022 to be deployed to pinpoint the location of any leakage over a wide area where we suspect leakage to be occurring. IWNL also regularly send teams out to visually inspect our region, identifying areas of wet ground for potential leaks.

The vast majority of IWNL's sites are at an early stage of development and the take up of connected properties is low due to the downturn in housing markets. Meaningful assessments of unaccounted-for supply pipe background leakage and operational usage will therefore be difficult to make until several years of operational metering data are available. In the meantime, regular monitoring of demands and trends in readings from bulk meters will continue.
All of IWNL's meter base are fitted with AMR devices which enable remote meter reading through 'drive-by' collection. The meter readings will flag any customer-side leakage via leakage alarms which are triggered when there is constant flow through a customer meter. All leakage alarms are actioned by our customer services department where the customer is contacted and informed of the issue and the actions required to rectify.

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 (UKWIR 1998), "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."

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 increasing demand, and uncertainty increases 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 achieved. If Available Headroom falls below the target value, the water company will face the risk of not achieving its stated level of service.

IWNL have used a method developed by UKWIR in 1998 (UKWIR 1998) to estimate target headroom for the current WRMP. This method involves assigning a score depending on the degree of uncertainty and the scale of its impact on the supply-demand balance. Only uncertainties which are outside the direct control of IWNL are considered. There are 11 factors considered in this method, however many of these do not apply as IWNL receives a bulk supply. Please see table below.

Table 1 Target Headroom Methodology

Supply Related		**Applies to IWNL**
S1	Vulnerable surface water licences	No
S2	Vulnerable groundwater licences	No
S3	Time of limited licences	No
S4	Bulk Transfers	Yes
S5	Gradual pollution of sources	No

Supply Related		Applies to IWNL
	causing a reduction in abstraction data	
S6	Accuracy of supply-side data	No
S7	Single source dominance and critical periods	No
S8	Uncertainty of impact on climate change on source yield	No
Demand Related		
D1	Accuracy of sub-component data	Yes
D2	Demand forecast variation	Yes
D3	Uncertainty of impact of climate change on demand	Yes

Each factor has been evaluated and an average score used for all zones. Headroom scores have been extrapolated across the planning period. This has calculated to rise from 6.7% in 2022/2023 to 7.9% in 2049/50 for all IWNL's WRZs. The percentage is calculated from the of the distribution input by incumbent.

EFFECT OF CLIMATE CHANGE

Effect on Supply

An increase in target headroom resulting from climate change has not been added to IWNL's supply model since our water is supplied by a point of connection to an incumbent water supply. The bulk supply agreements will not change as a result of climate change and the contracted quantities are not restricted by a change in demand which is a consequence of climate change.

Effect on Demand

Each zone has been assessed for its vulnerability using the Met Office's 2018 UK Climate Projections (UKCP18) predictions and after liaison with incumbent water companies. UKCP18 predicts a medium vulnerability across England.

Factors found to be statistically significant in determine house water consumption (UKWIR2013b) are:

- Sunshine Hours
- Maximum Temperature
- Rainfall.
- Property Type.
- Month.

IWNL have used UKCP18 climate projections to consider how these factors influence domestic demand. Weather-demand relationships have been formed and these have been used to derive the estimate of climate change on household water demand. The increase in

target headroom for each zone has been evaluated to ensure consistency with the incumbent water companies.

4 SCENARIO TESTING

Recent events have allowed IWNL to test for extreme events which demonstrates that the bulk supply agreements will cope with increased demand.

COVID-19

The coronavirus lockdown in 2020-2021 led to changes in water consumption; consumption moved from public spaces (gyms, offices) to domestic settings and changed the peak demand timeframe. This change was viewed within IWNL sites and demonstrated that the bulk supply agreements coped with the increase of demand. The below figure illustrates this change of peak demand at the beginning of 2020 lockdown.

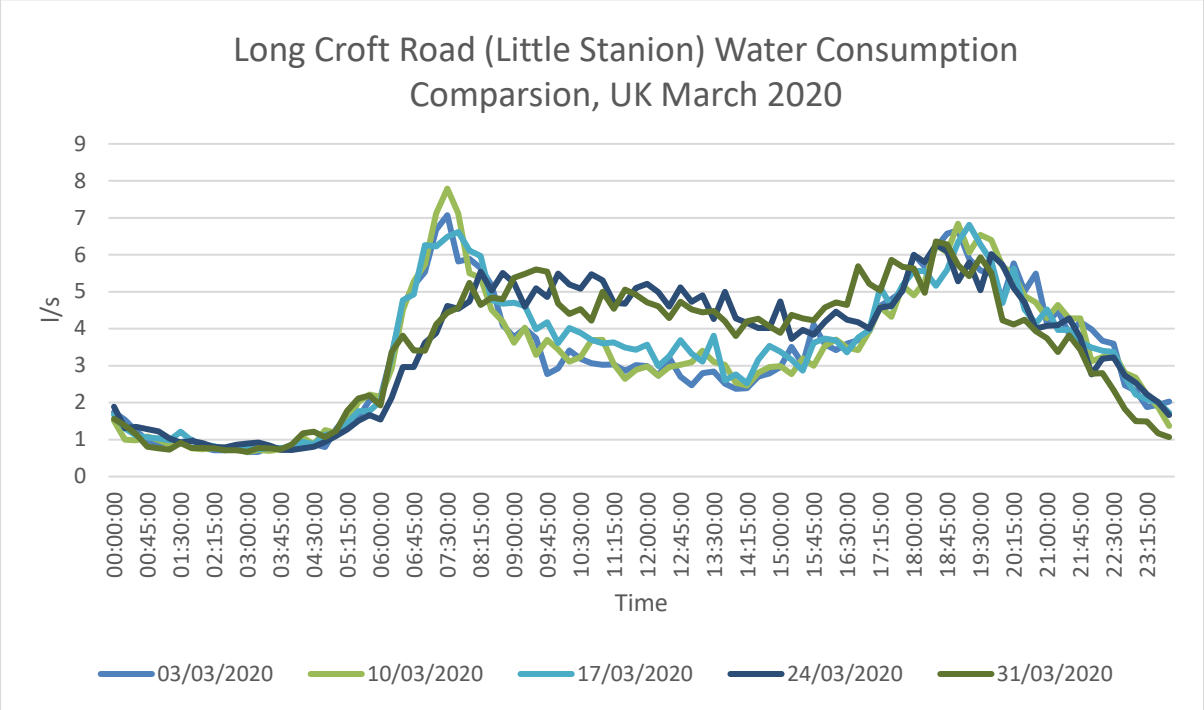

Figure 4-1 Long Croft Road (Little Stanion) Water Consumption Comparsion, UK March 2020

UK lockdown changed behaviours and routines, which led to an increase of water consumption; this can be viewed within IWNL's insets during this timeframe. There was an 8.84% increase in water usage in 2020 when compared to the previous year.

Year	Average property daily usage from meter reads, M^3/d^2
2019	0.286
2020	0.312

Figure 4-2 Average water consumption using daily usage meter reads for 2019 and 2020

2022 SUMMER

At present, IWNL does not have its own sources and as such supply demand management is wholly under the control of the incumbent supplying company. IWNL's drought actions rely on effective communication with the affected customers and demand side actions. Implementation of Temporary Use Bans (TUBs) only occurs following confirmation from our incumbent supplier that they are implementing TUBs.

2022 was the driest summer on record in the UK since 1995 (Met Office, 2022), and the second hottest summer on record. Water demand increases during hot weather, this combined with dry weather and low reservoir levels meant that several water companies in the UK placed TUBs to help manage demand and protect the environment.

In the Summer of 2022, IWNL placed TUBs (Temporary Use Ban) in the following areas following communication with the incumbent supplier:

- Yorkshire Water region
- Thames Water region
- Southern Water region
- South East Water region

Several IWNL insets are monitored by bulk meter telemetry. These meters allow IWNL to analysis water consumption for an inset. The graph below shows the water usage for a site pre-, during and post- implementation of TUBs.

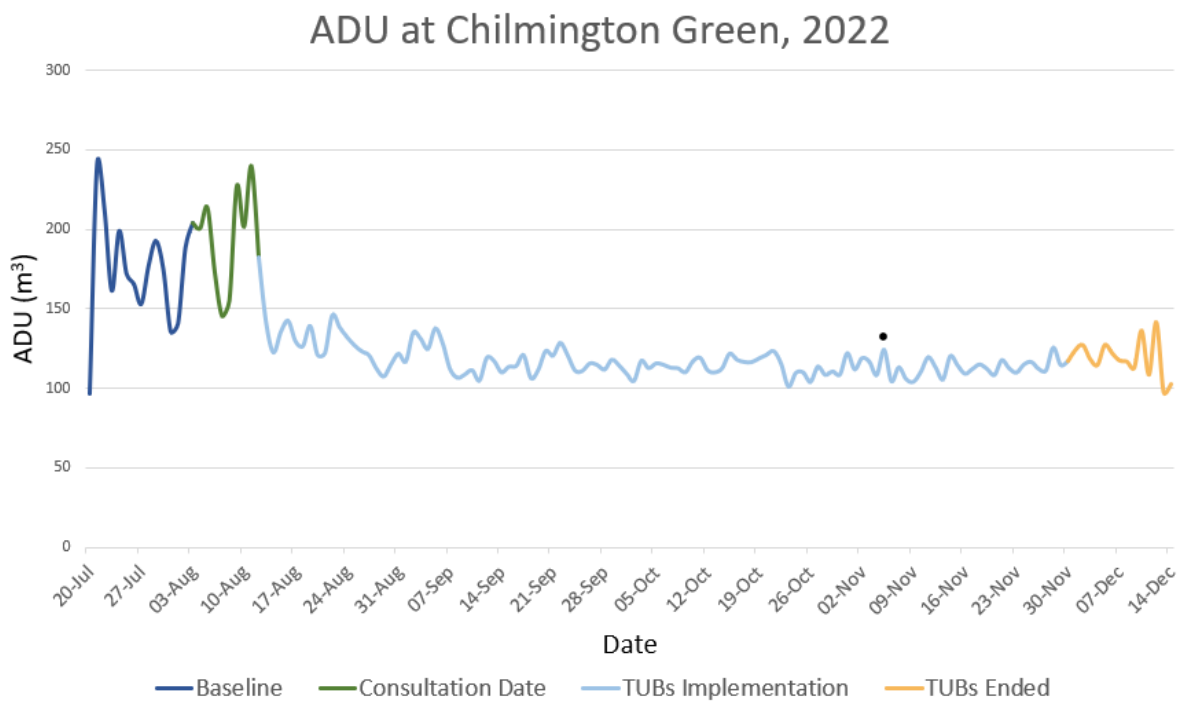

Figure 4-3 – ADU at Chilmington Green, 2022

The graph above shows the Annual Demand Usage (ADU) in m3 per day at Chilmington Green before, during and after a TUB was implemented in 2022. It shows a 32.7% drop in water usage at this site after the TUB was implemented, which far exceeds the estimation of up to 9.5% by IWNL. Water demand also stayed at similar levels after the TUB was rescinded which helps keeping demand below the bulk supply agreement.

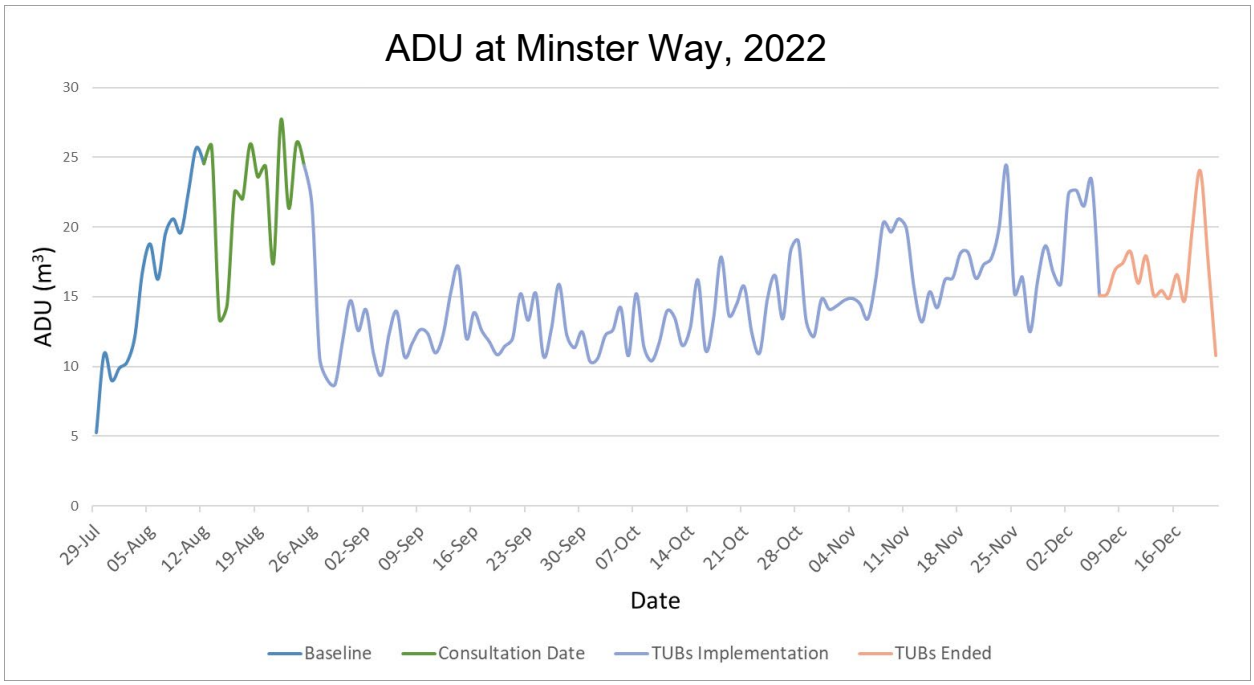

Figure 4-4 ADU at Minster Way, 2022

The graph above shows a site (Minister Way) where consumption initially dropped by 20%, but gradually increased as time went on. This is a new and rapidly growing site where demand is expected to increase as it is developed; this has influenced the ADU during TUB implementation. Demand was rising by approximately 0.5m3 per day, whereas the rate of increase during the TUB was only 0.1m3 per day. This difference shows that although usage overall was going up throughout the TUB, the usage per person was likely not to be increasing.

These graphs do not show the PCC for individual sites as this data accounts for all site usage which includes leakage and construction which accounts for fluctuation in the ADU. These graphs, alongside other data collected, demonstrates that the bulk supply agreement was suitable for the increased demand caused by hot, dry weather prior to TUB intervention.

5 OPTION APPRAISAL

In our inset application, IWNL has agreed target rates for ‘unaccounted-for-water’ of 5% of distribution input. Most of this will be leakage and the terms ‘leakage’ and ‘unaccounted-for water’ are taken as synonymous in the context of our supply-demand balance.

IWNL have considered a reduction of this target to 4.5%. This reduction would be achieved through monitoring and repairing leaks on the network.

WRMP24 preferred plan has a target of 5% for leakage. IWNL will take an adaptive approach and will aim to exceed this figure. Where agreed with incumbents, IWNL will install data loggers on the bulk meter. Where the incumbent will install a data logger on the bulk meter, arrangements will be made so that IWNL will be granted access to view this data. Data loggers will enable IWNL to monitor night-time flows to estimate leakage and respond to incidents promptly.

6 WATER RESOURCES ZONES DETAILS

INTRODUCTION

Each Water Resource Zone (WRZ) is the defined by the incumbent water company who supplies the water via a bulk supply point. The methodology and assumptions used to construct the supply-demand balance are described in 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 totalled by the incumbent.

AFFINITY WATER

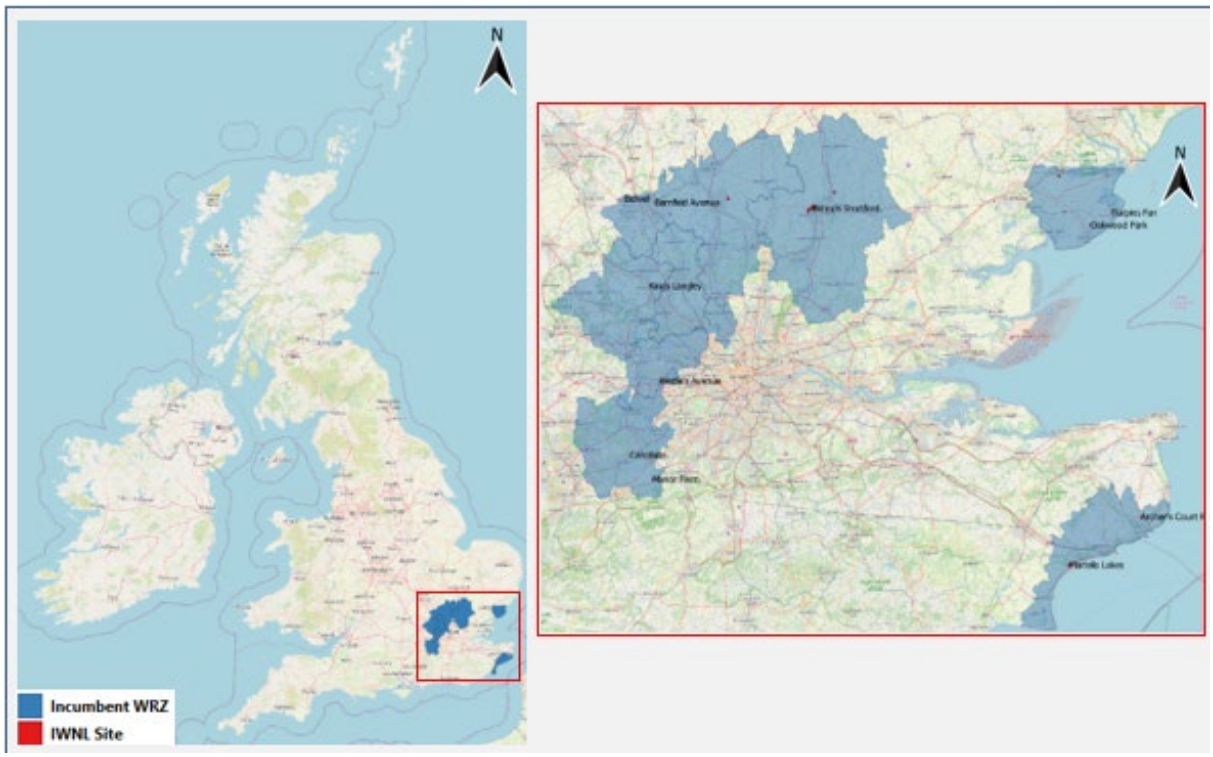

Figure 6-1 Affinity Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 14860 dwellings across the Affinity Water supply area. The maximum quantities to be supplied under this agreement are listed in Appendix E on a site-by-site basis.

CURRENT DEMANDS

Currently 6199 (41.7%) out of a projected final total of 14860 domestic units are connected. The current water demand across IWNL sites in the Affinity Water supply area is 2622.94 m3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 14860 domestic properties and 43 commercial units of varying type at full build-out. The precise rate of development is not known as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 3209 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages. Total demand in 2049/50 (including leakage) is estimated to be 4387.78 m3/d with an additional 448.48 m3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 824.73m3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.2 and 6.3.

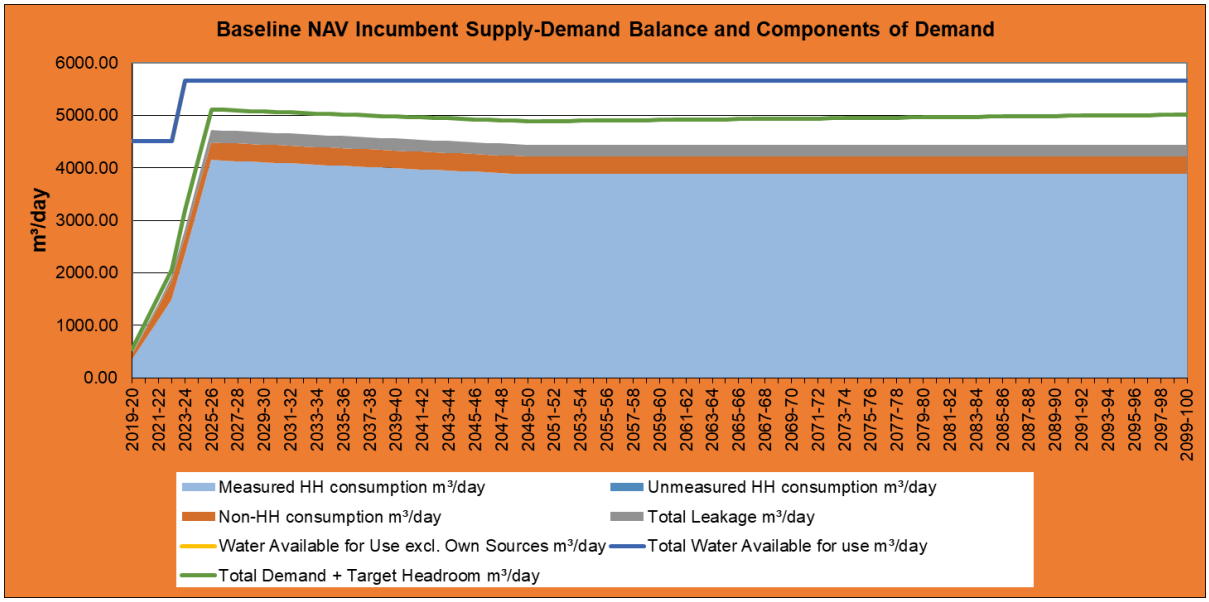

Figure 6-2 Baseline Supply-Demand Balance for Affinity Water Area

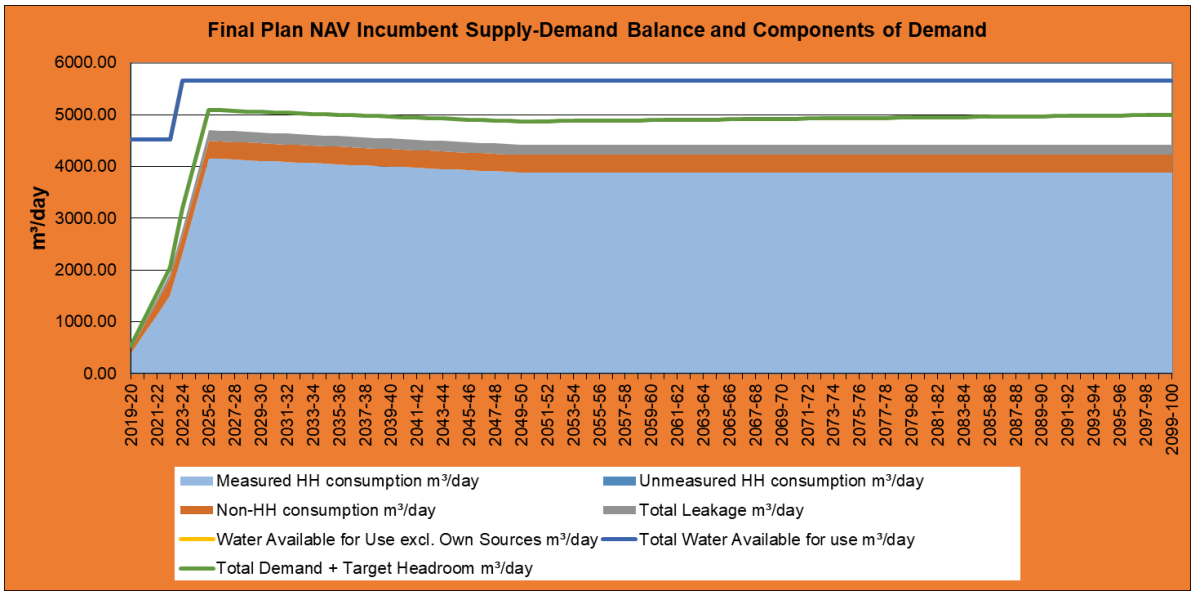

Figure 6-3 Final Plan Supply-Demand Balance for Affinity Water Area

ANGLIAN WATER

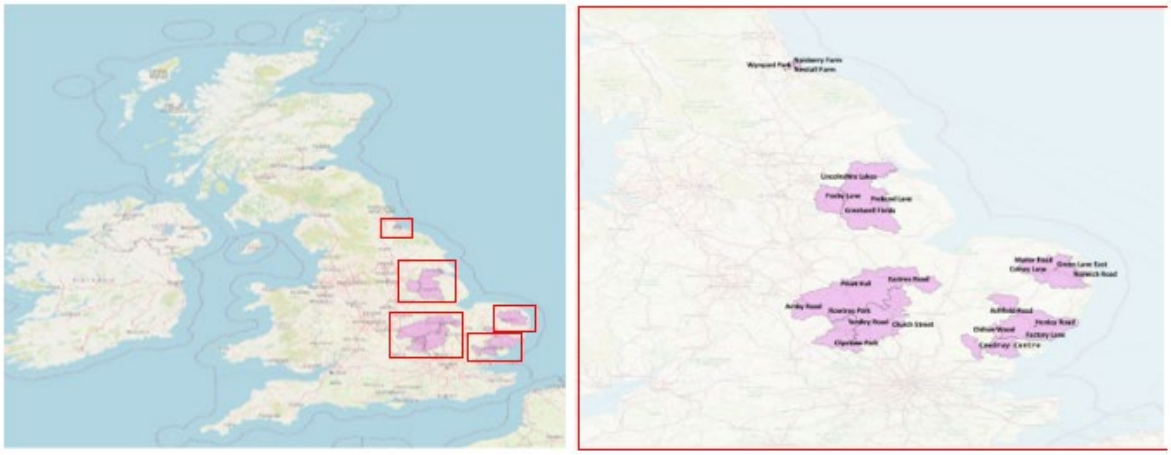

Figure 6-4 Anglian Water supply area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 52238 dwellings across the Anglian Water supply area. The maximum quantities to be supplied under this agreement are listed in Appendix E on a site-by-site basis.

CURRENT DEMANDS

Currently 20298 (38.1%) out of a projected final total of 52238 domestic units are connected. The current water demand across IWNL sites in the Anglian Water supply area is 6915.43 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 52238 domestic properties and 143 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 9438 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 12188.22 m^3/d with an additional 1972.81 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 10741.20m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.5 and 6.6.

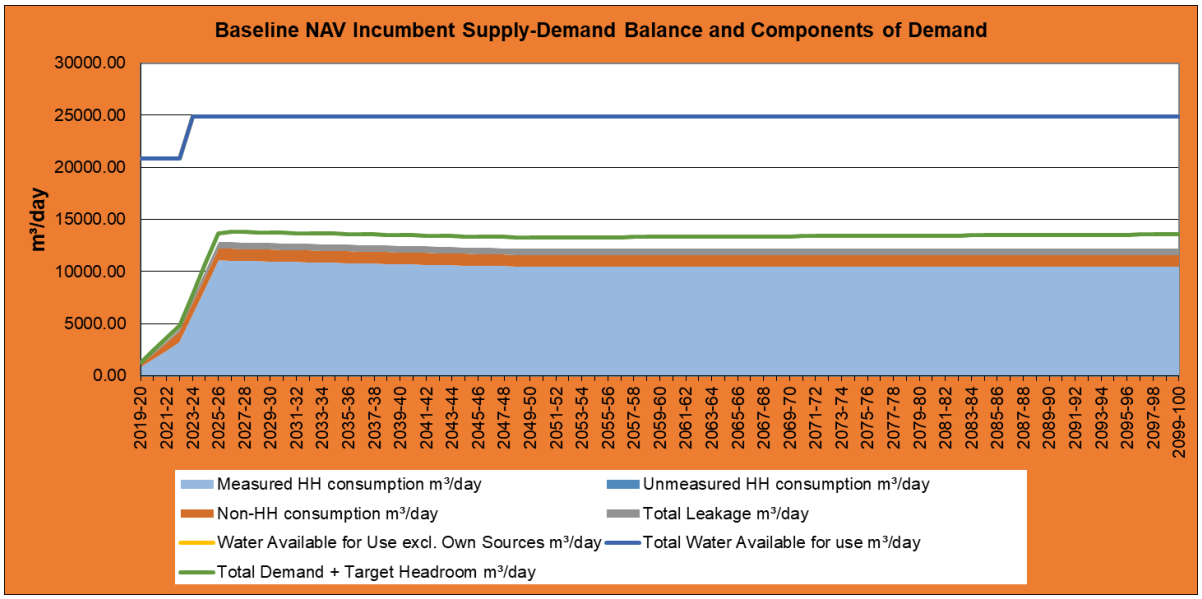

Figure 6-5 Baseline Supply-Demand Balance for Anglian Water Area

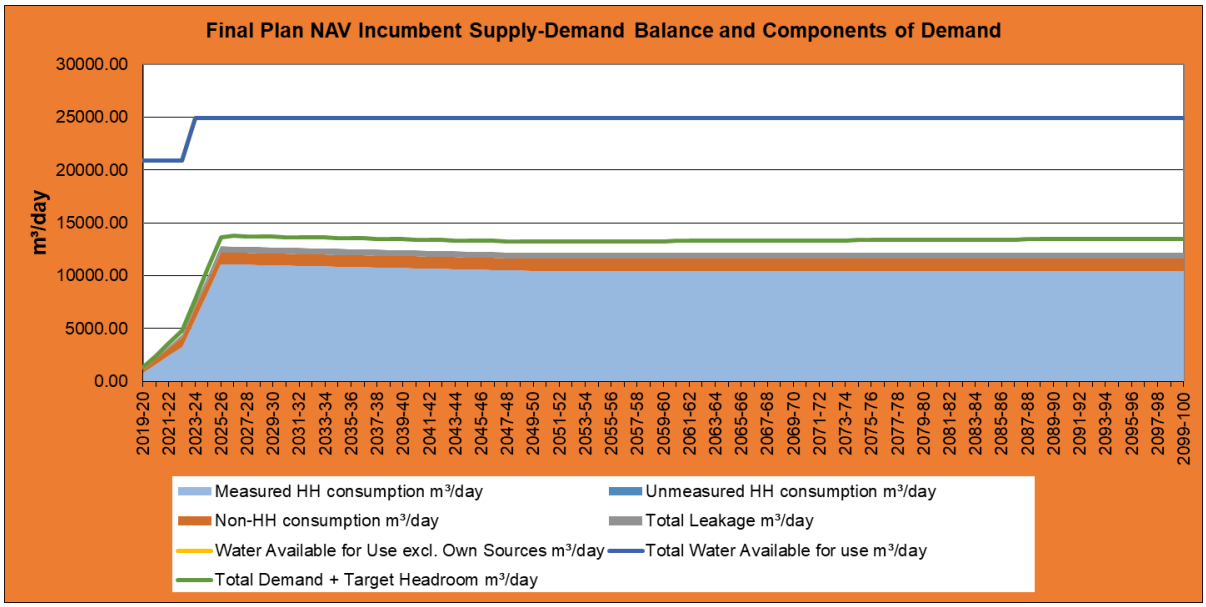

Figure 6-6 Final Plan Supply-Demand Balance for Anglian Water Area

BRISTOL WATER

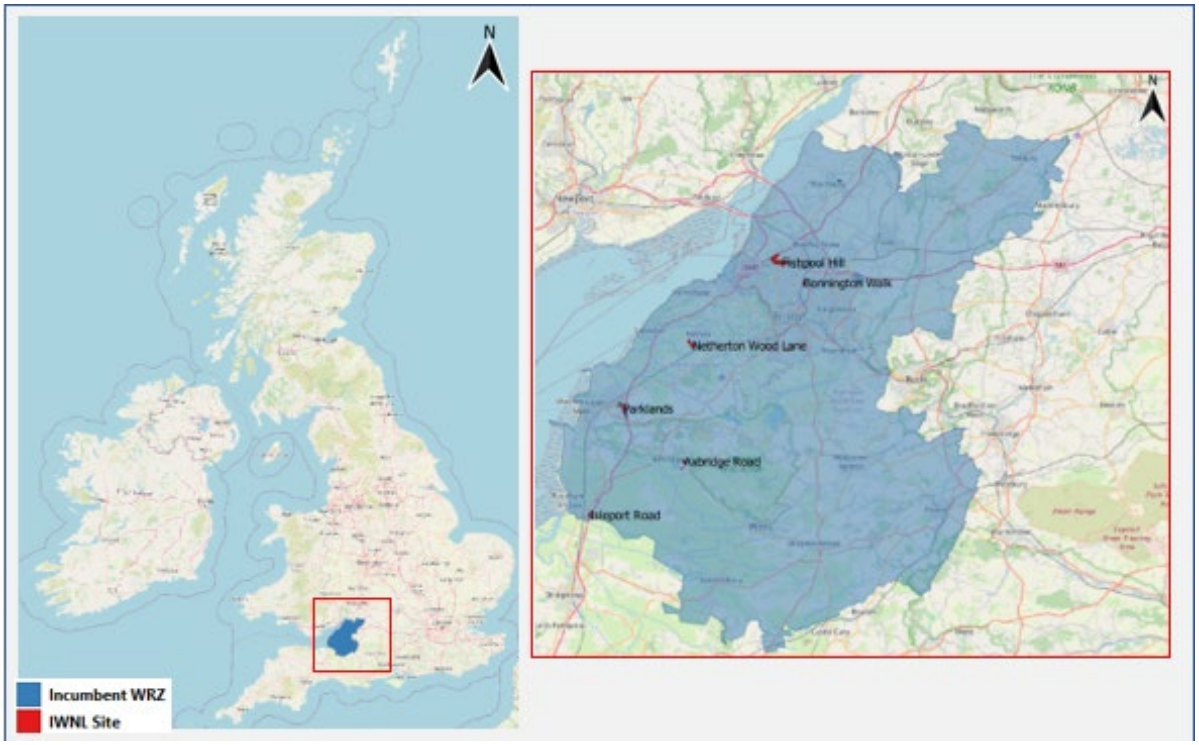

Figure 6-7 Bristol Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 5579 dwellings across the Bristol Water supply area. The maximum quantities to be supplied under this agreement are listed in Appendix E on a site-by-site basis.

CURRENT DEMANDS

Currently 1518 (27.2%) out of a projected final total of 5579 domestic units are connected. The current water demand across IWNL sites in the Bristol Water supply area is 563.53 m3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 5579 domestic properties and 25 commercial units of varying type at full build-out. The precise rate of development is not known as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 832 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 1243.59 m3/d with an additional 167.57 m3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 704.03m3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.8 and 6.9.

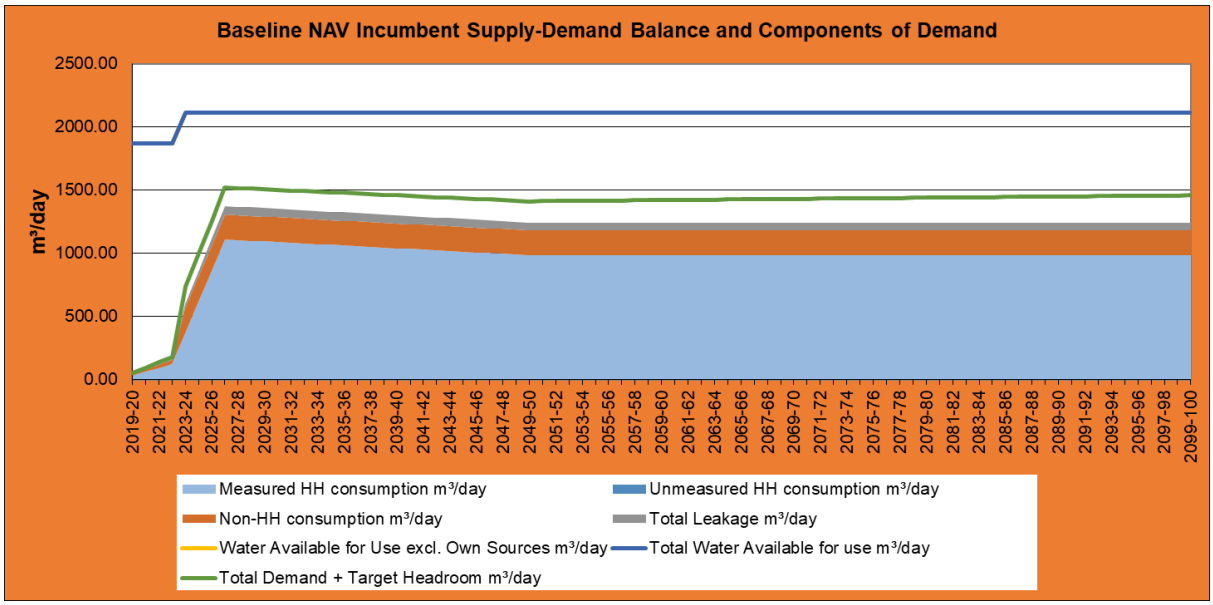

Figure 6-8 Baseline Supply-Demand Balance for Bristol Water Area

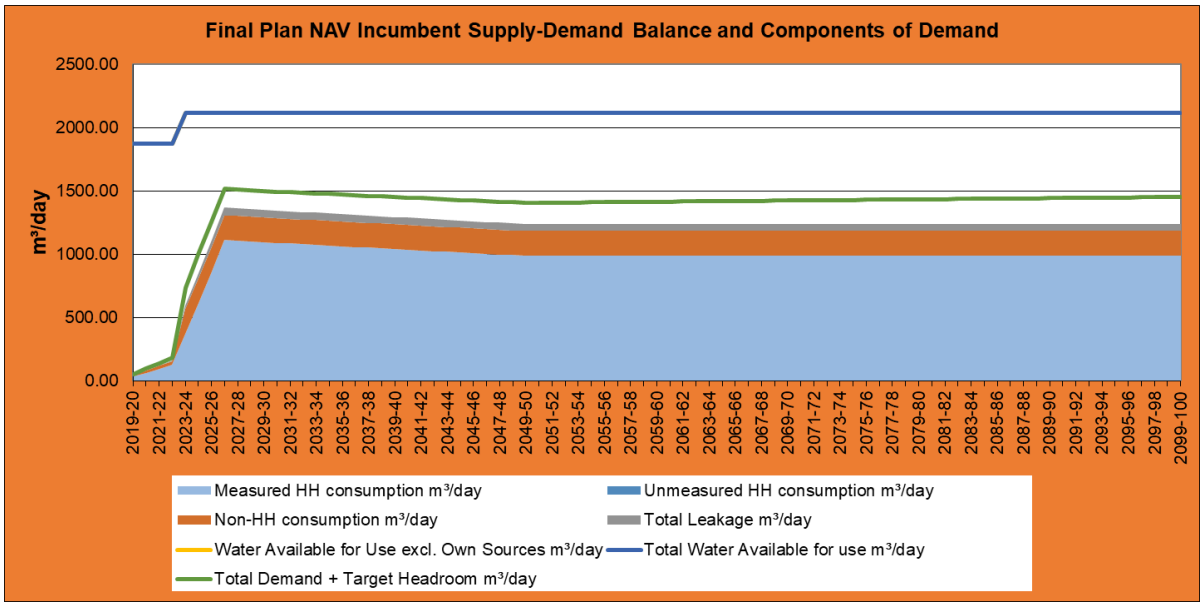

Figure 6-9 Final Plan Supply-Demand Balance for Bristol Water Area

CAMBRIDGE WATER

Figure 6-10 Cambridge Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 2,792 dwellings across the

Cambridge Water supply area. The maximum quantities to be supplied under this agreement are listed in Appendix E on a site-by-site basis.

CURRENT DEMANDS

Currently 270 (9%) out of a projected final total of 2,792 domestic units are connected. The current water demand across IWNL sites in the Cambridge Water supply area is 170.18 m3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 2,792 domestic properties and 13 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 68 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 828.64 m3/d with an additional 84.06 m3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 218.36 m3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.11 and 6.12.

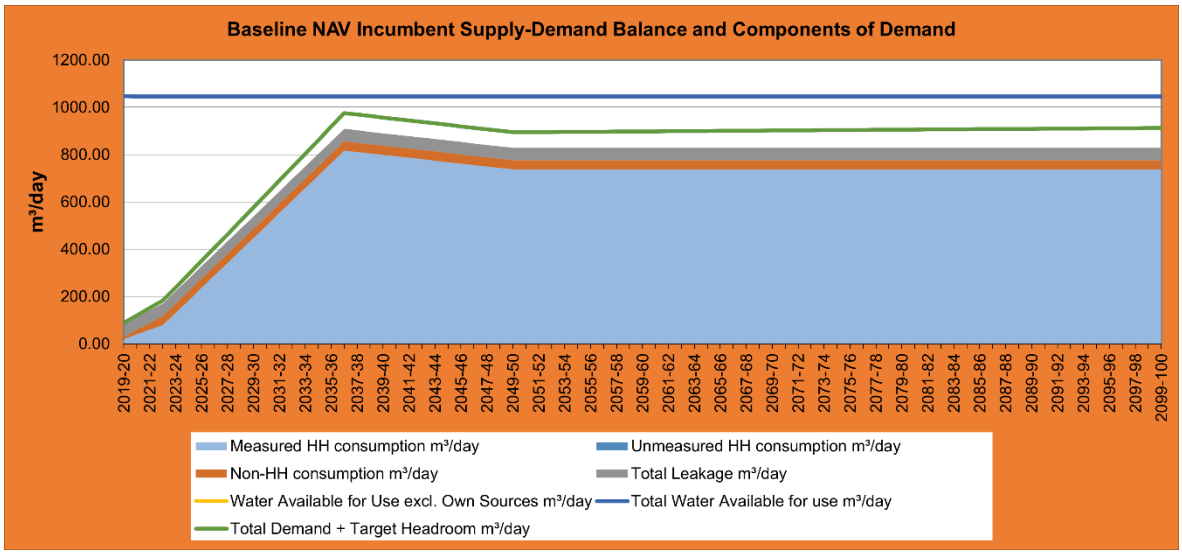

Figure 6-11 Baseline Supply-Demand Balance for Cambridge Water Area

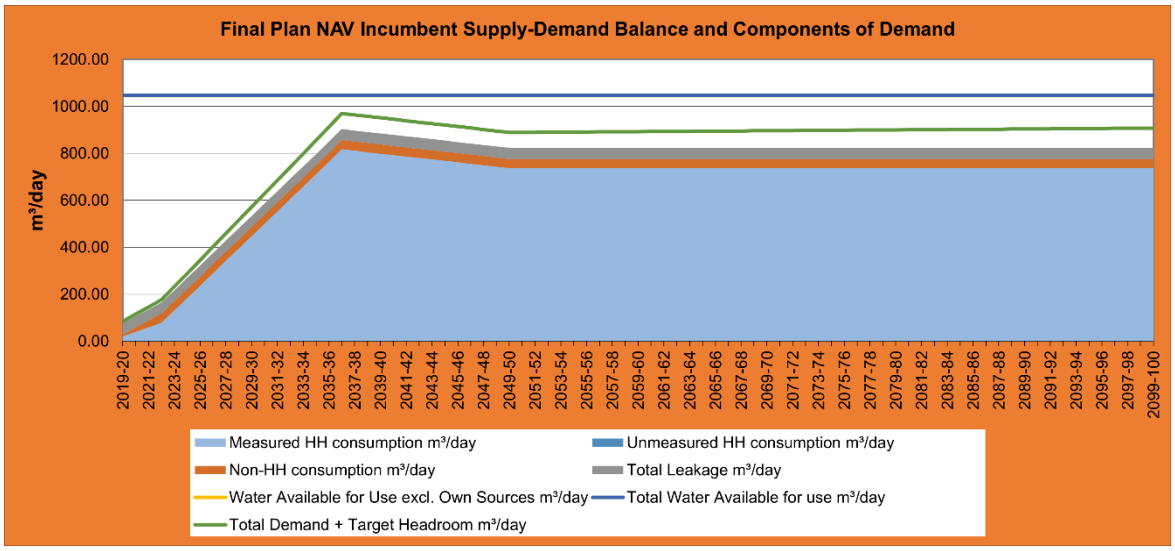

Figure 6-12 Final Plan Supply-Demand Balance for Bristol Water Area

ESSEX AND SUFFOLK WATER

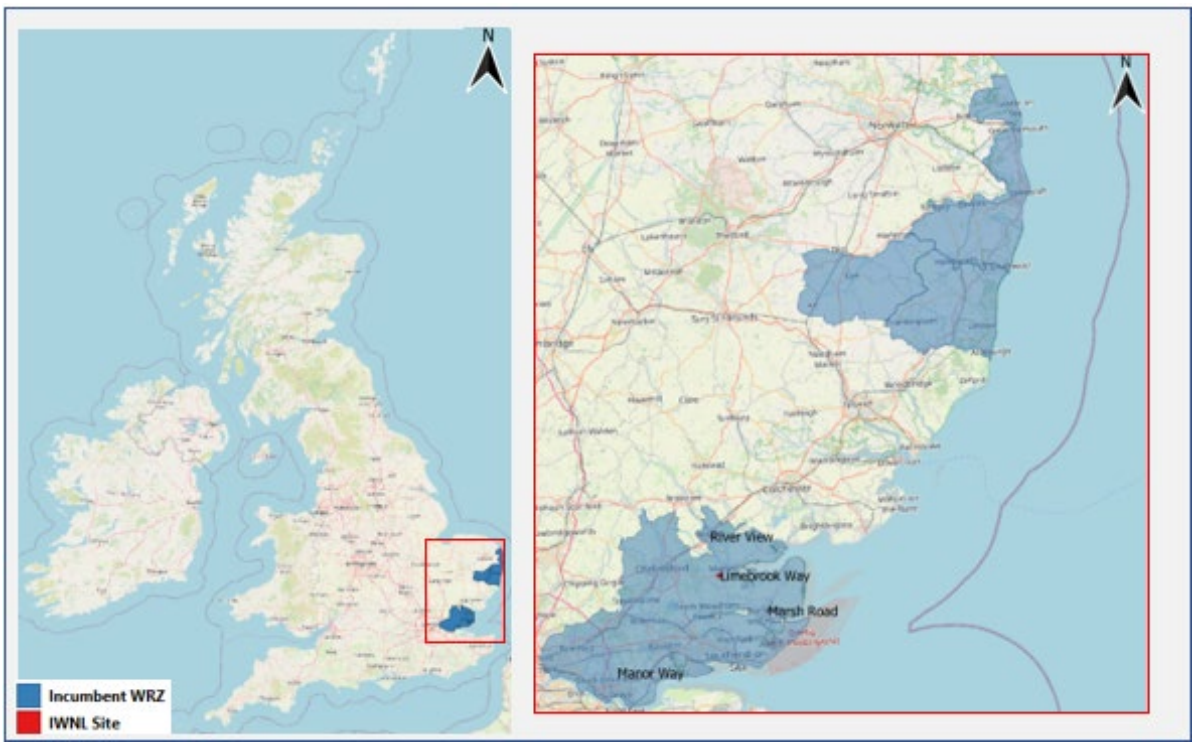

Figure 6-13 Essex and Suffolk Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 3882 dwellings across the Essex and Suffolk Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.13 on a site-by-site basis.

CURRENT DEMANDS

Currently 2362 (60.8%) out of a projected final total of 3882 domestic units are connected. The current water demand across IWNL sites in the Essex & Suffolk Water supply area is 750.77 m3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 3882 domestic properties and 14 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 1131 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 1060.02 m3/d with an additional 115.30 m3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 280.06m3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.14 and 6.15.

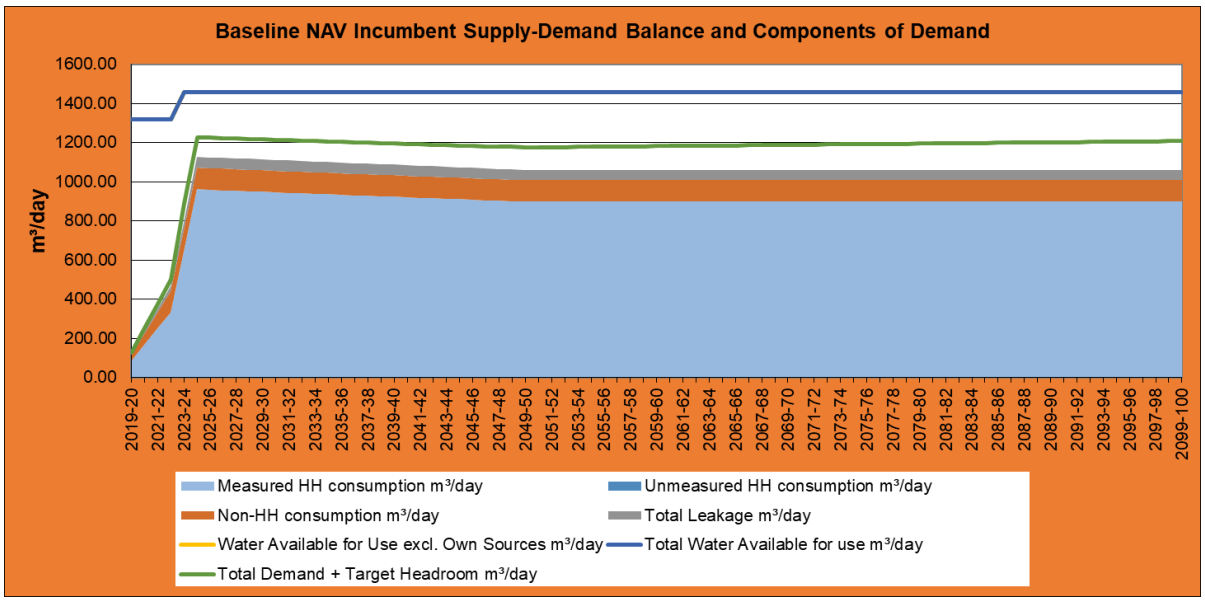

Figure 6-14 Baseline Supply-Demand Balance for Essex and Suffolk Water Area

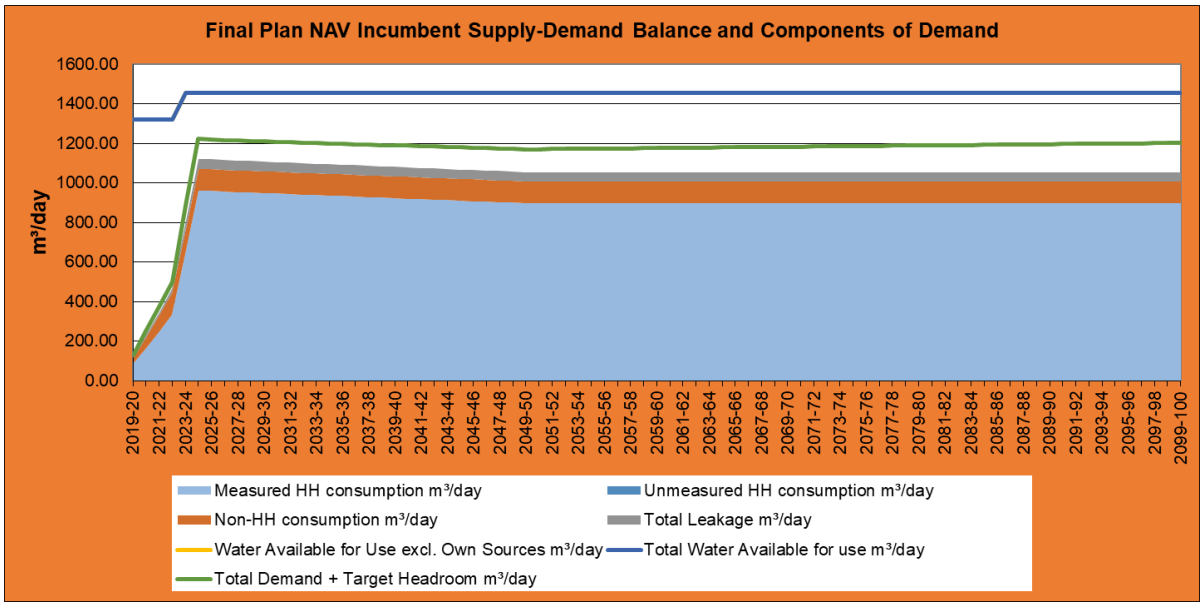

Figure 6-15 Final Plan Supply-Demand Balance for Essex and Suffolk Water Area

NORTHUMBRIAN WATER

Figure 6-16 Northumbrian Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 11495 dwellings across the Northumbrian Water supply area. The maximum quantities to be supplied under this

agreement are listed in Figure 6.16 on a site-by-site basis.

CURRENT DEMANDS

Currently 4021 (35.0%) out of a projected final total of 11495domestic units are connected. The current water demand across IWNL sites in the Northumbrian Water supply area is 1167.77 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 11495 domestic properties and 16 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 1832 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 2614.16 m^3/d with an additional 374.74 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 1741.30 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.17 and 6.18.

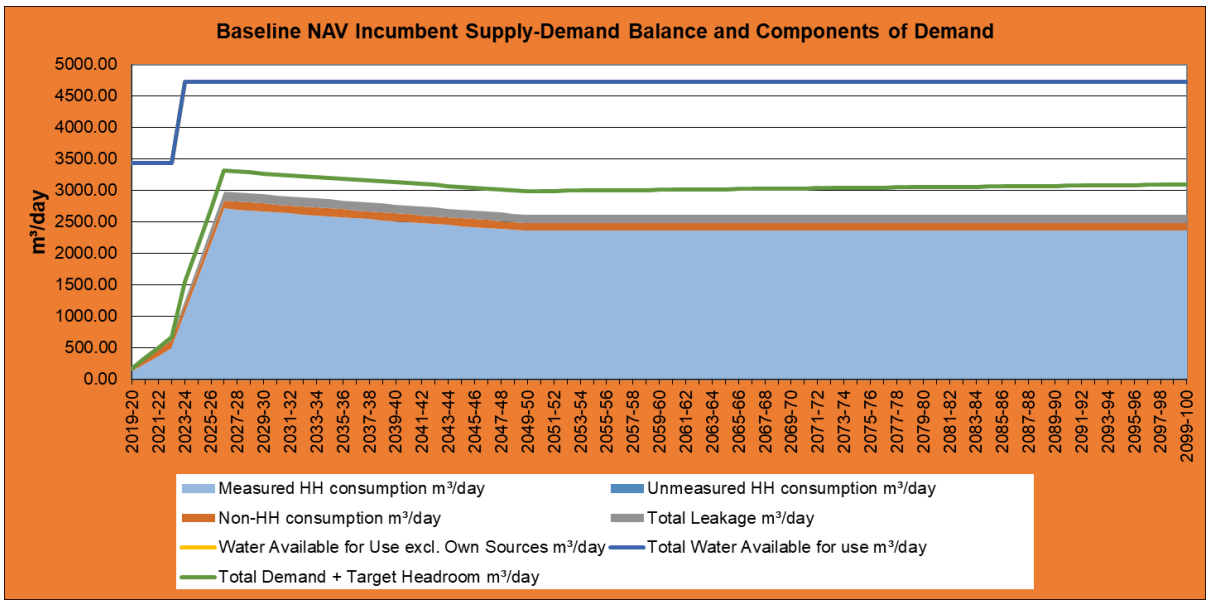

Figure 6-17 Baseline Supply-Demand Balance for Northumbrian Water Area

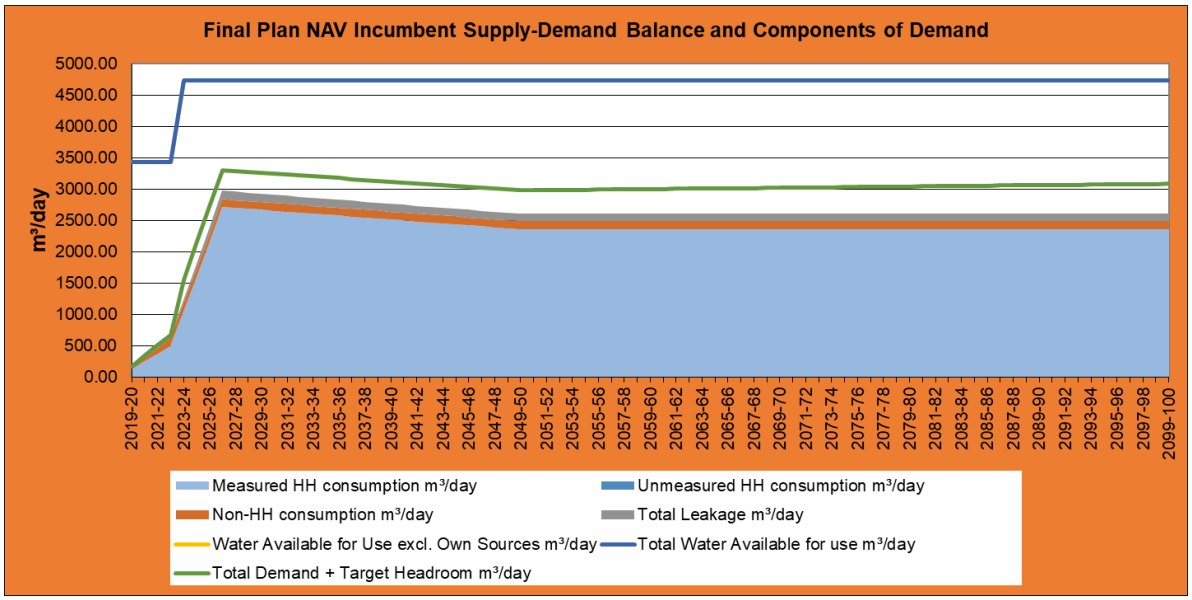

Figure 6-18 Baseline Supply-Demand Balance for Northumbrian Water Area

PORTSMOUTH WATER

Figure 6-19 Portsmouth Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 2,507 dwellings across the Portsmouth Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.19 on a site-by-site basis.

CURRENT DEMANDS

Currently 638 (25%) out of a projected final total of 2,507 domestic units are connected. The current water demand across IWNL sites in the Portsmouth Water supply area is 302.11 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 2,507 domestic properties and 50 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 160 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 780.49 m^3/d with an additional 79.18 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 181.11 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.20 and 6.21.

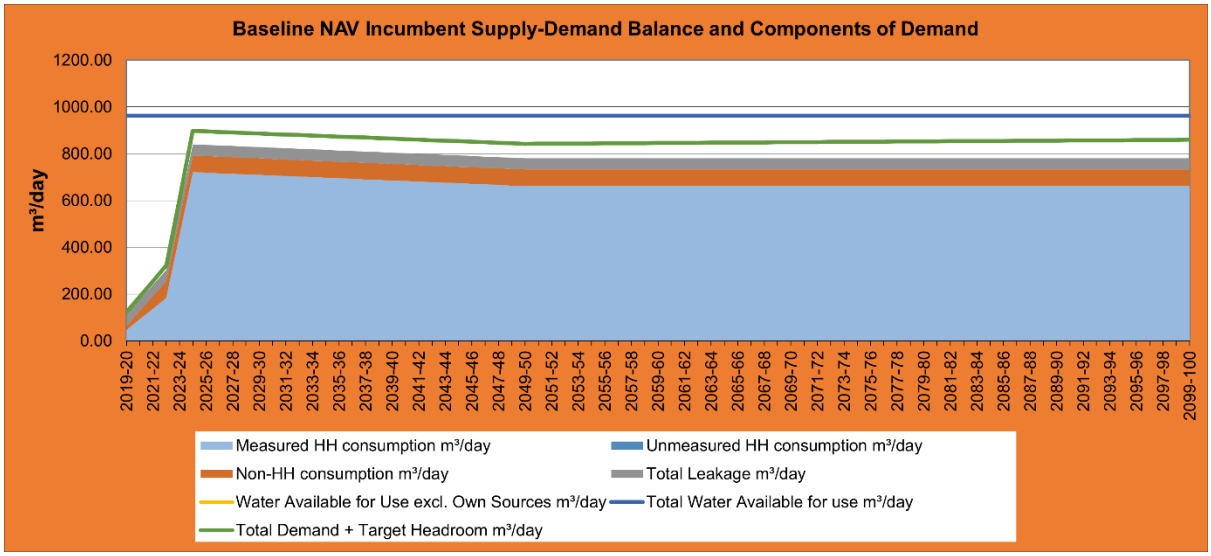

Figure 6-20 Baseline Supply-Demand Balance for Portsmouth Water Area

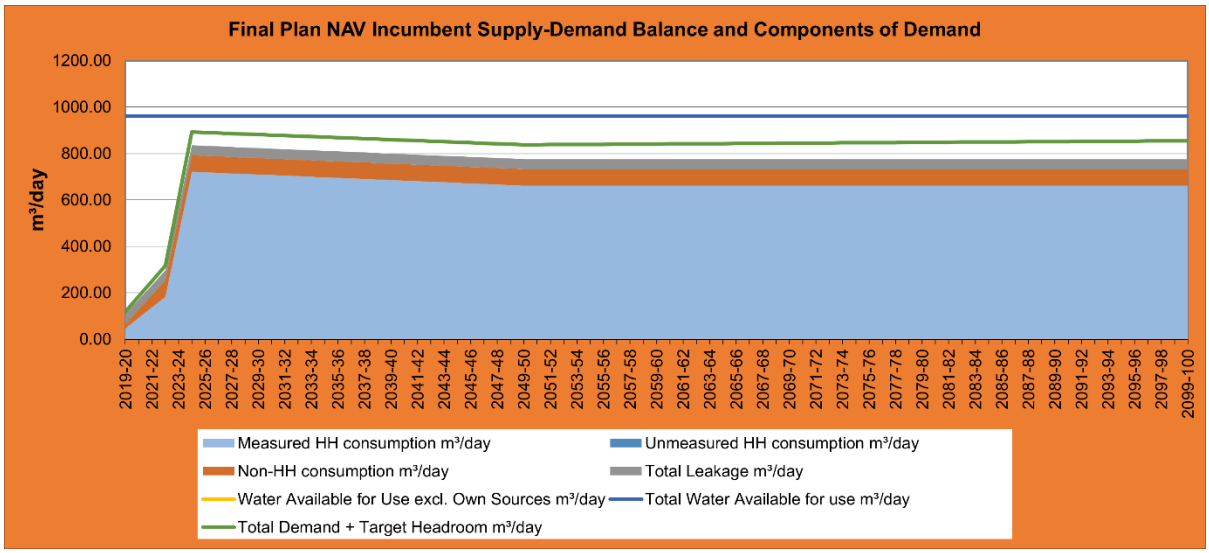

Figure 6-21 Final Plan Supply-Demand Balance for Portsmouth Water Area

SES WATER

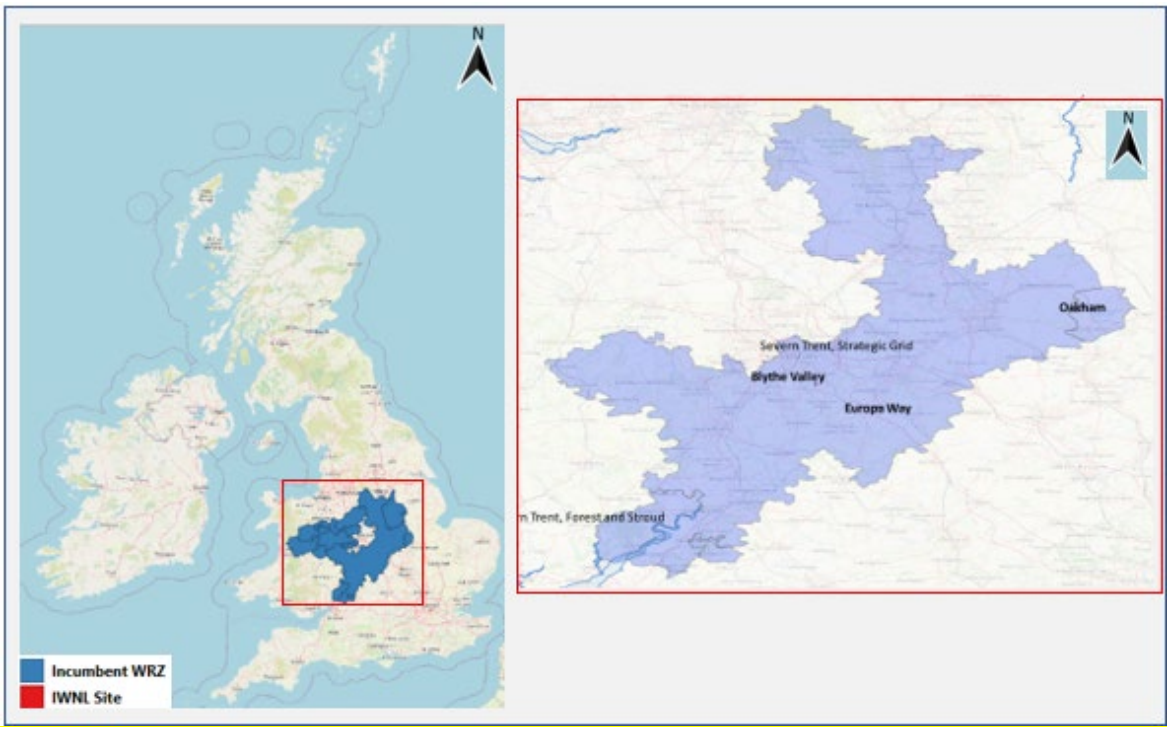

Figure 6-22 SES Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 159 dwellings across the SES Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.22 on a site-by-site basis.

CURRENT DEMANDS

Currently 0 (0%) out of a projected final total of 159 domestic units are connected. The current water demand across IWNL sites in the SES Water supply area is 21.27 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 159 domestic properties and 0 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 53 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 49.03 m^3/d with an additional 4.97 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 92.04 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.23 and 6.24.

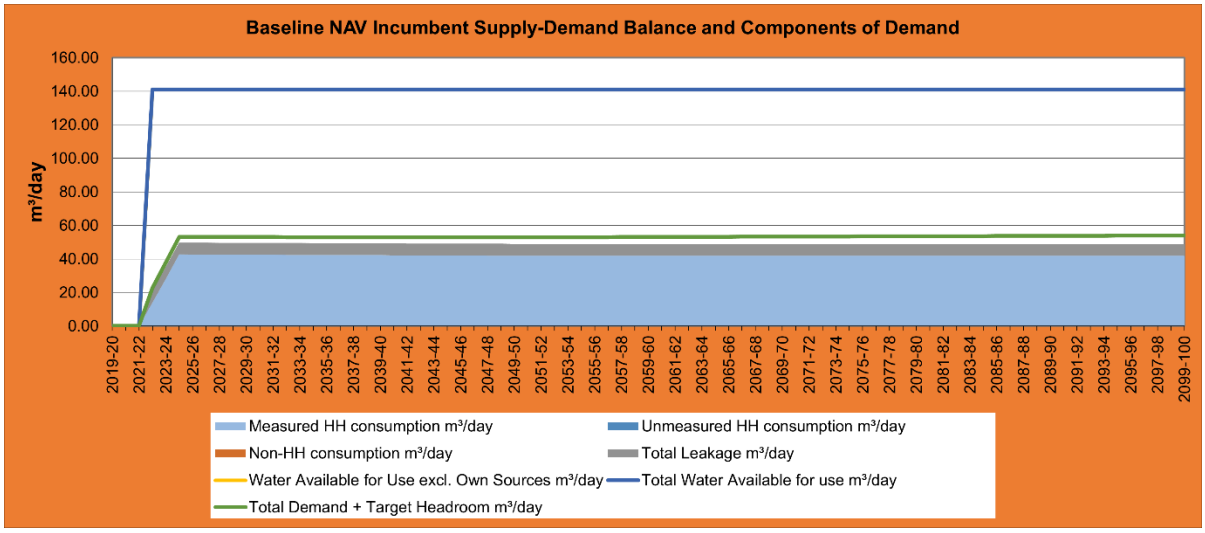

Figure 6-23 Baseline Supply-Demand Balance for SES Water Area

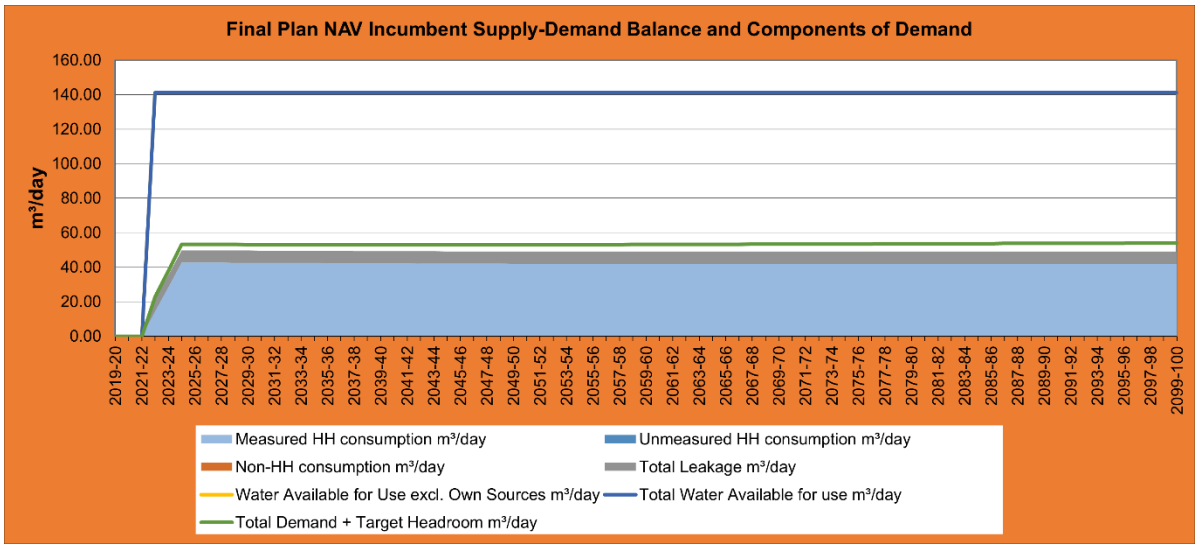

Figure 6-24 Final Plan Supply-Demand Balance for SES Water Area

SEVERN TRENT WATER

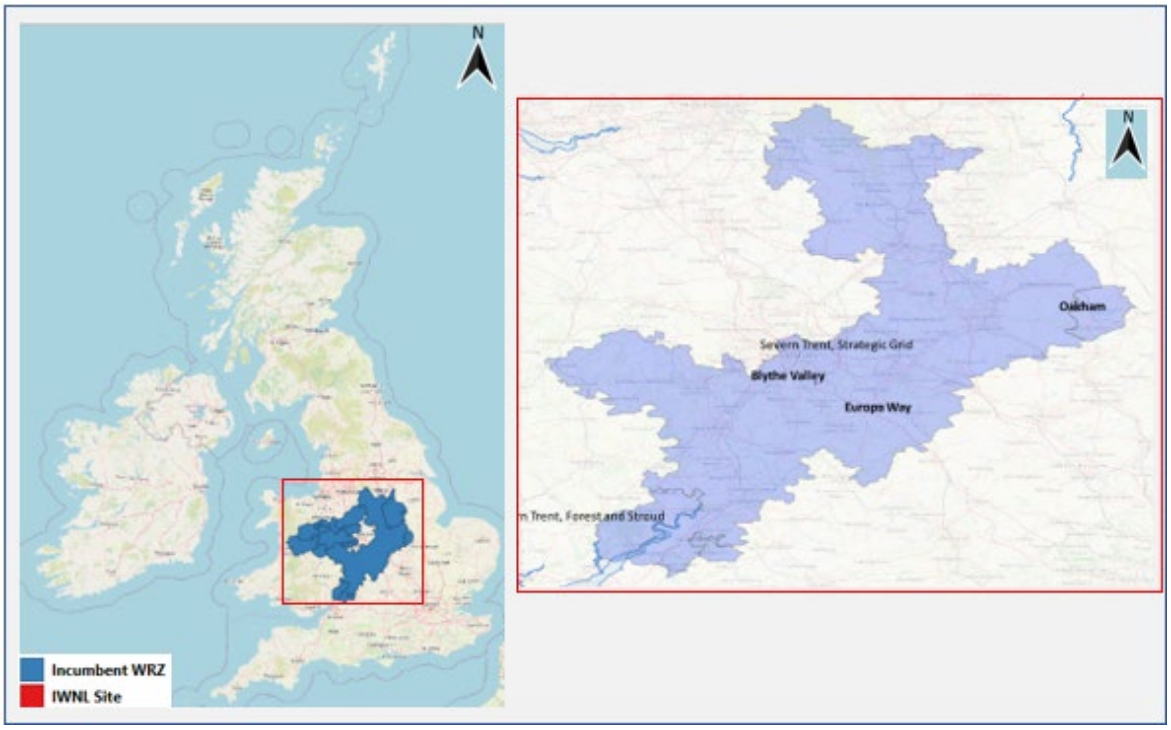

Figure 6-25 Severn Trent Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 34529 dwellings across the Severn Trent Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.22 on a site-by-site basis.

CURRENT DEMANDS

Currently 11158 (32.3%) out of a projected final total of 34529 domestic units are connected. The current water demand across IWNL sites in the Severn Trent Water supply area is 191.54 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 34529 domestic properties and 55 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 6208 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 6907.80 m^3/d with an additional 1139.41 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 6335.20 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.23 and 6.24.

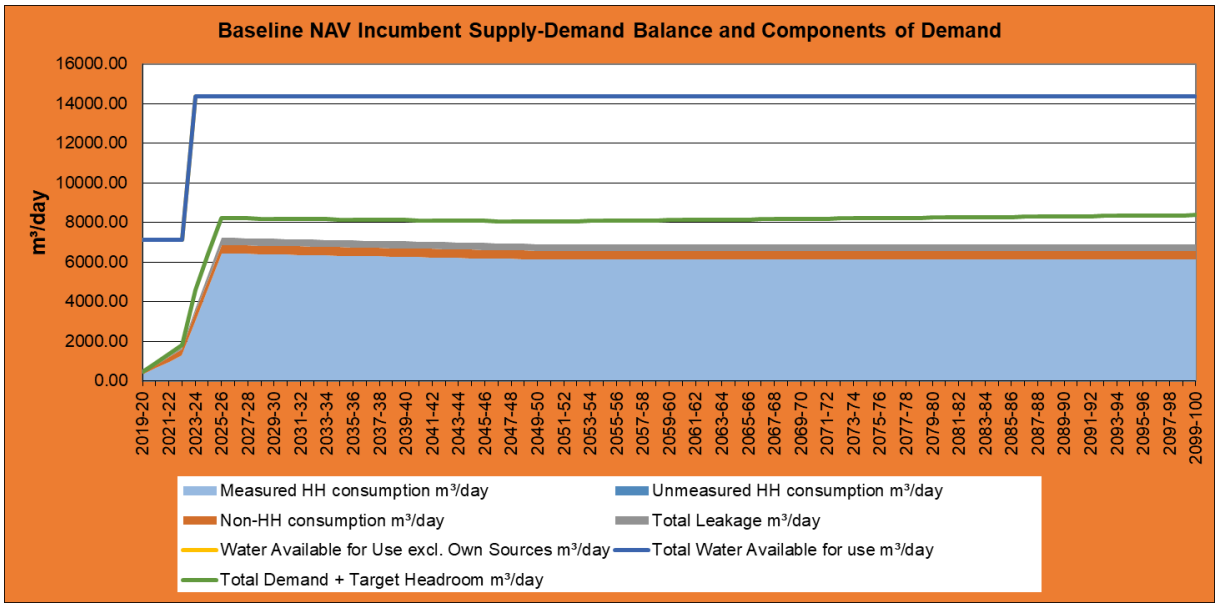

Figure 6-26 Baseline Supply-Demand Balance for Severn Trent Water Area

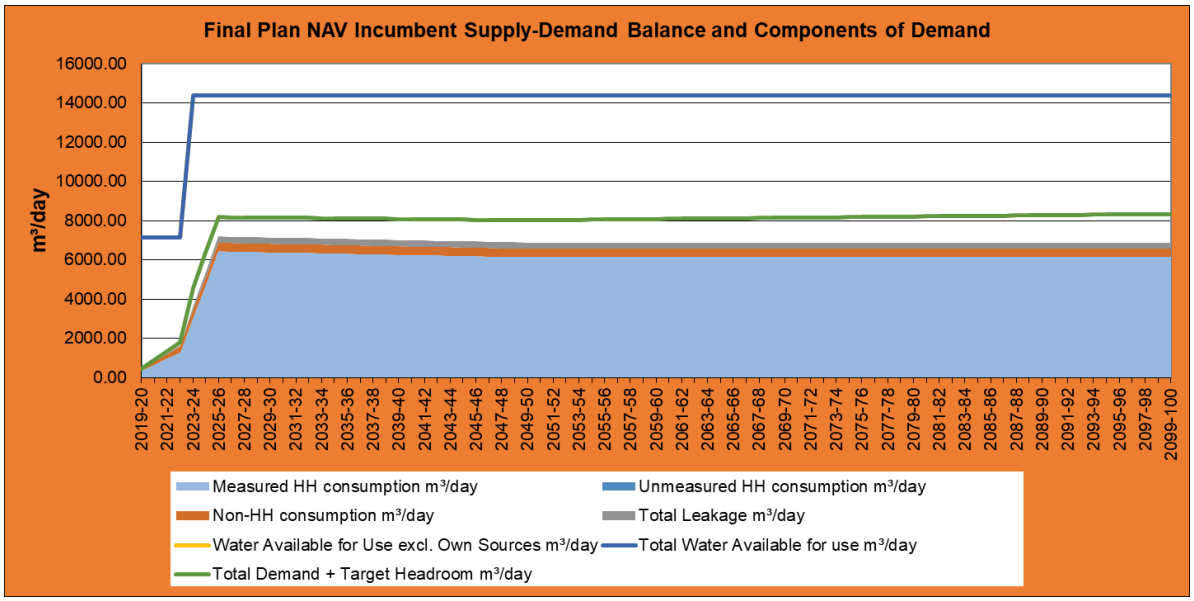

Figure 6-27 Final Plan Supply-Demand Balance for Severn Trent Water Area

SOUTH EAST WATER

Figure 6-28 South East Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 18320 dwellings across the South East Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.25 on a site-by-site basis.

CURRENT DEMANDS

Currently 4493 (24.5%) out of a projected final total of 18320 domestic units are connected. The current water demand across IWNL sites in the South East Water supply area is 1544.47 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 18320 domestic properties and 45 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 2724 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 3825.11 m^3/d with an additional 587.54 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 3003.71m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.26 and 6.27.

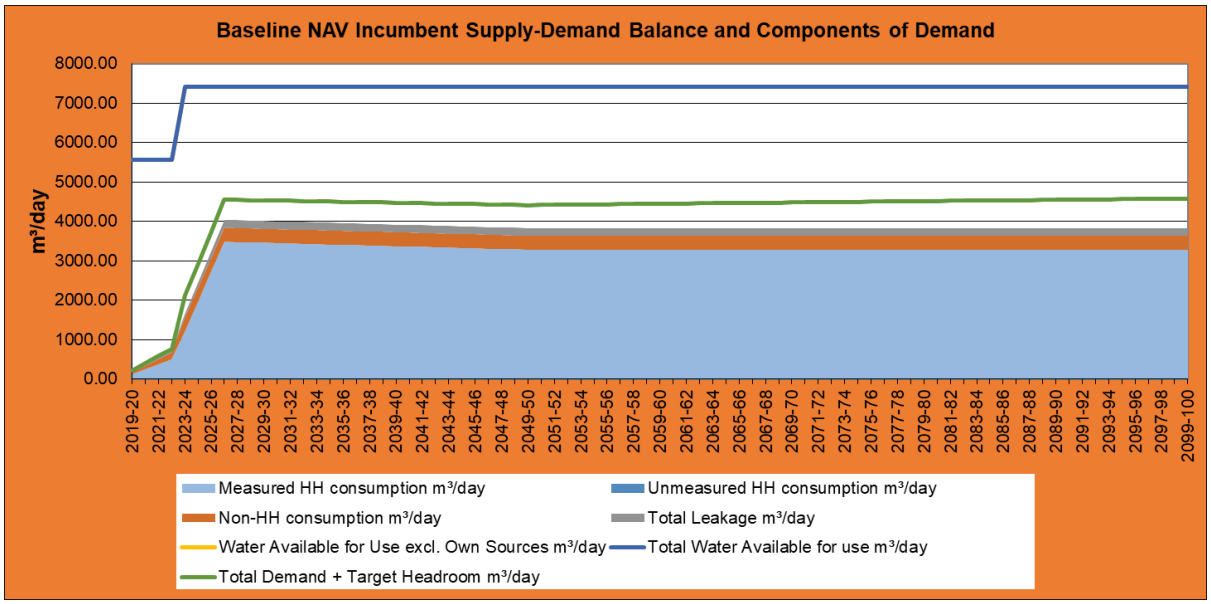

Figure 6-29 Baseline Supply-Demand Balance for South East Water Area

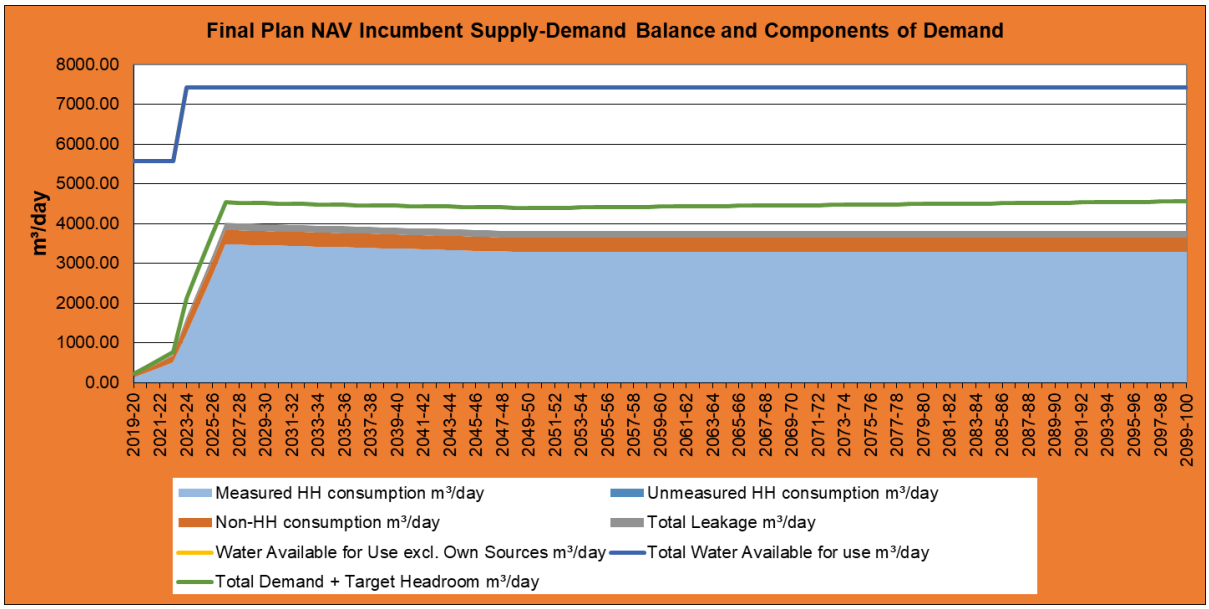

Figure 6-30 Final Plan Supply-Demand Balance for South East Water Area

SOUTH STAFFS WATER

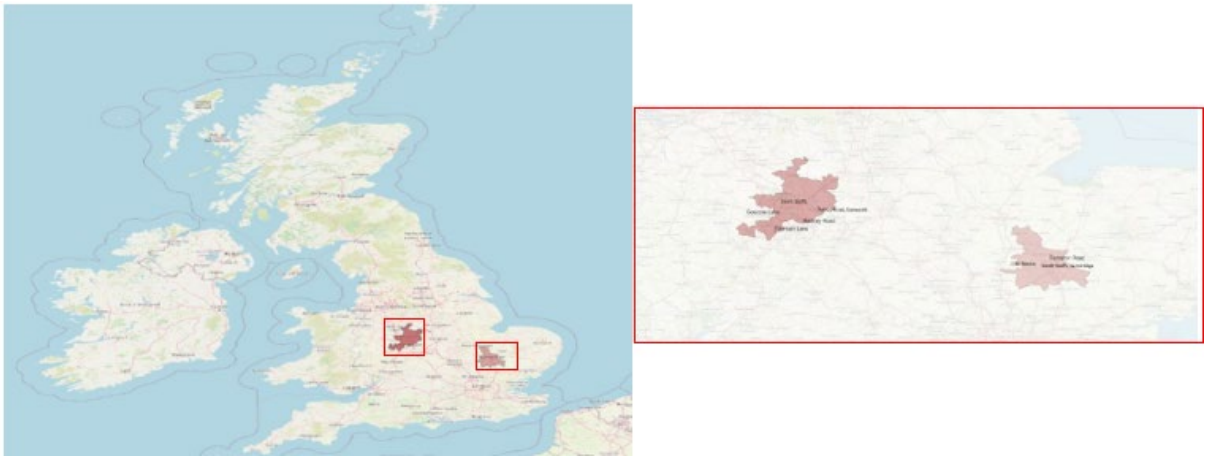

Figure 6-31 South Staffs Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 2498 dwellings across the South Staffs Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.28 on a site-by-site basis.

CURRENT DEMANDS

Currently 1065 (42.6%) out of a projected final total of 2498 domestic units are connected. The current water demand across IWNL sites in the South Staffs Water supply area is 279.03 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 2498 domestic properties and 3 commercial units of varying type

at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 483 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 545.65 m^3/d with an additional 74.09 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 315.51 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.29 and 6.30.

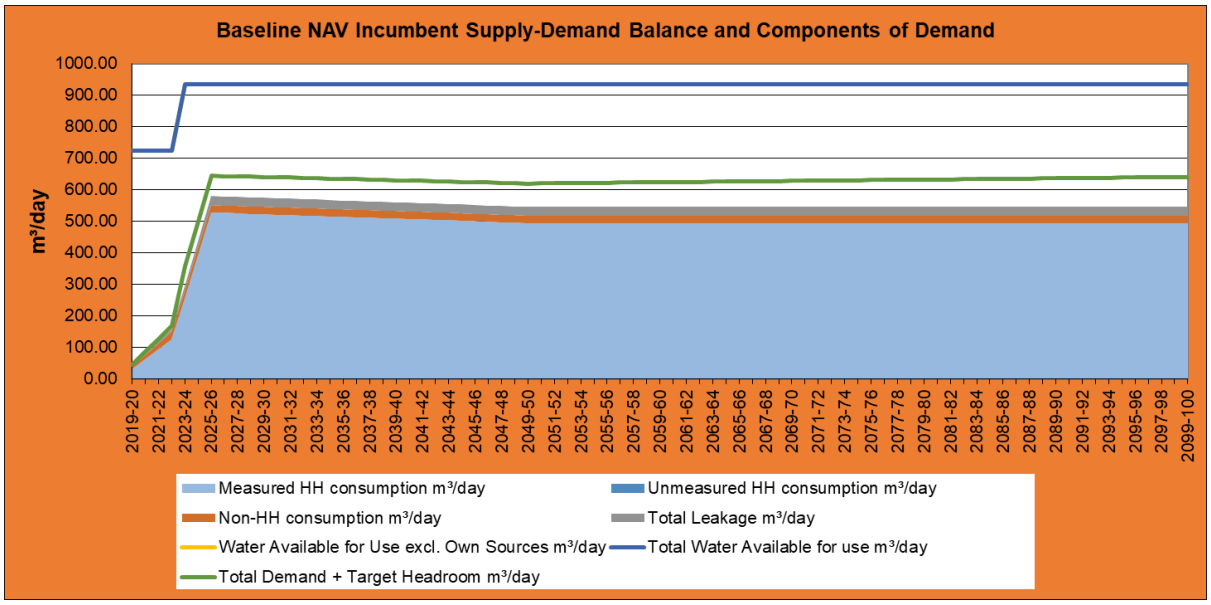

Figure 6-32 Baseline Supply-Demand Balance for South Staff Water Area

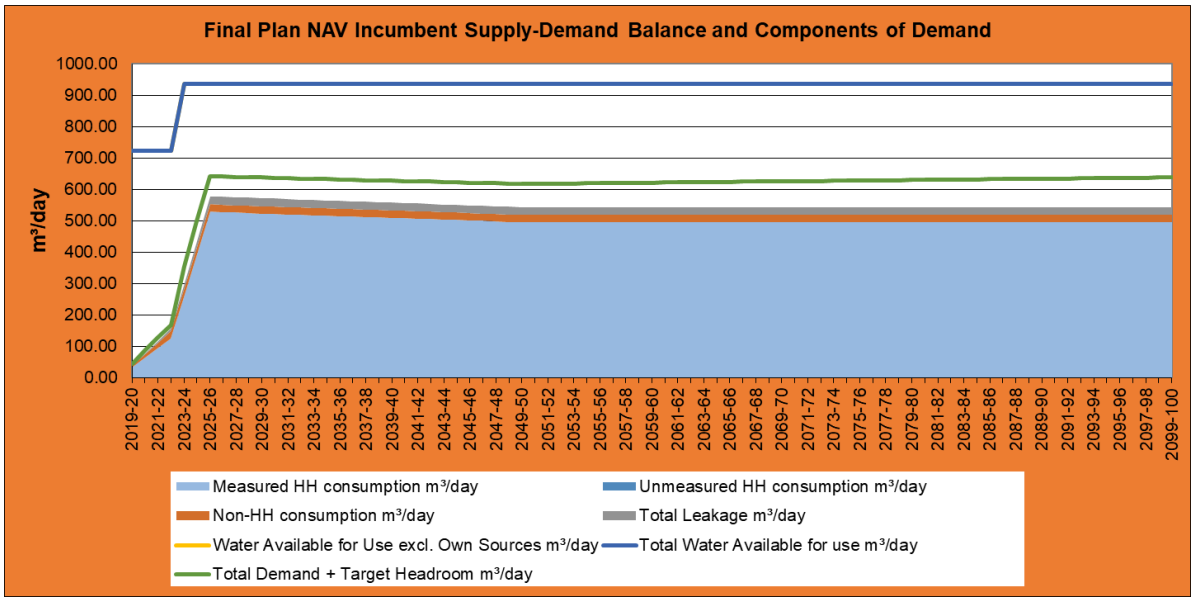

Figure 6-33 Final Plan Supply-Demand Balance for South Staff Water Area

SOUTH WEST WATER

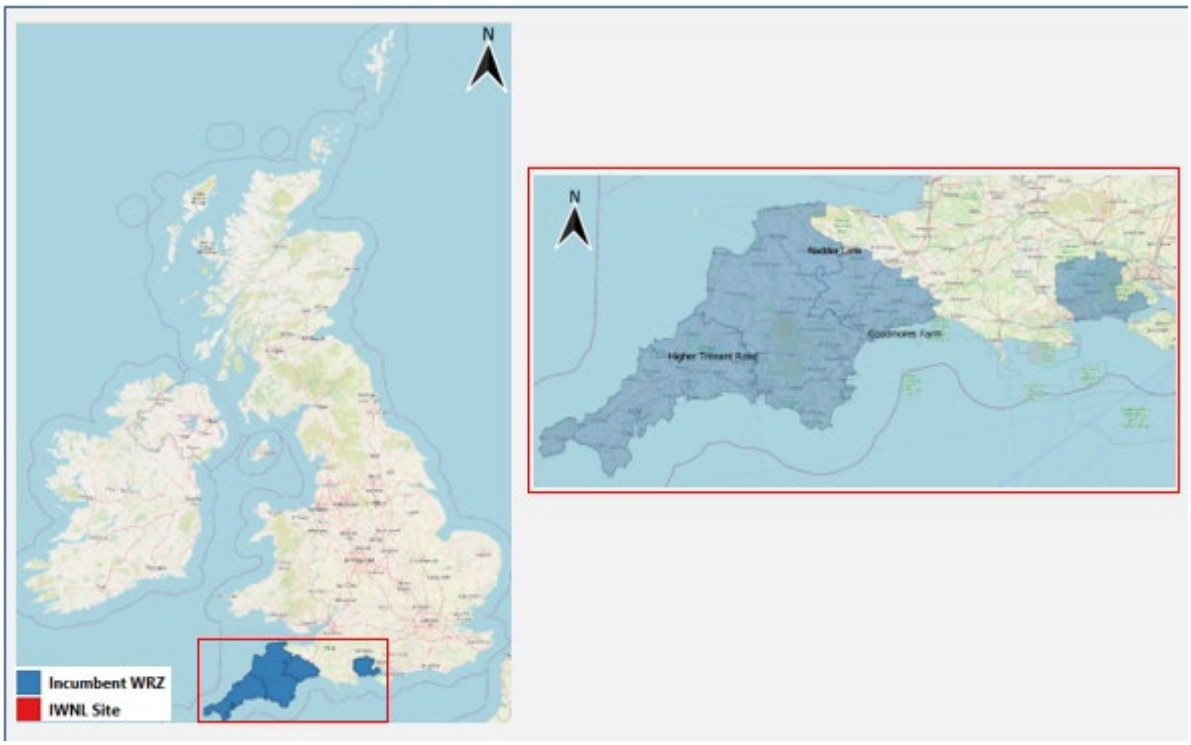

Figure 6-34 South West Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 4039 dwellings across the South West Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.31 on a site-by-site basis.

CURRENT DEMANDS

Currently 781 (19.3%) out of a projected final total of 4039 domestic units are connected. The current water demand across IWNL sites in the South West Water supply area is 399.04 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 4039 domestic properties and 21 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 740 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 597.04 m^3/d with an additional 133.31 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 952.36 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.32 and 6.33.

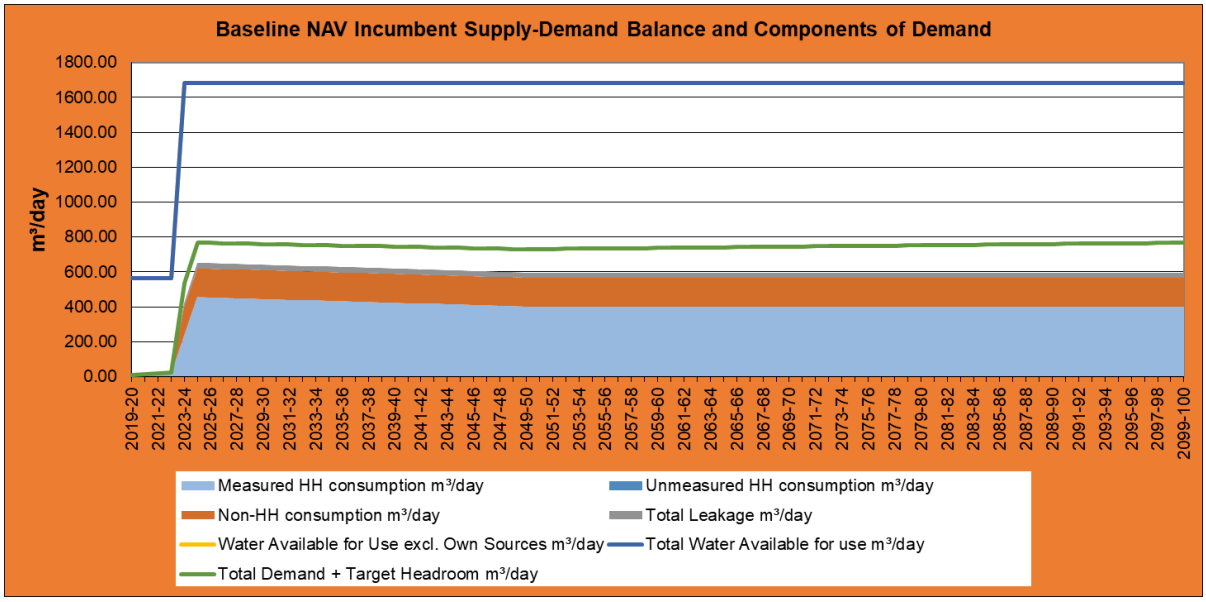

Figure 6-35 Baseline Supply-Demand Balance for South West Water Area

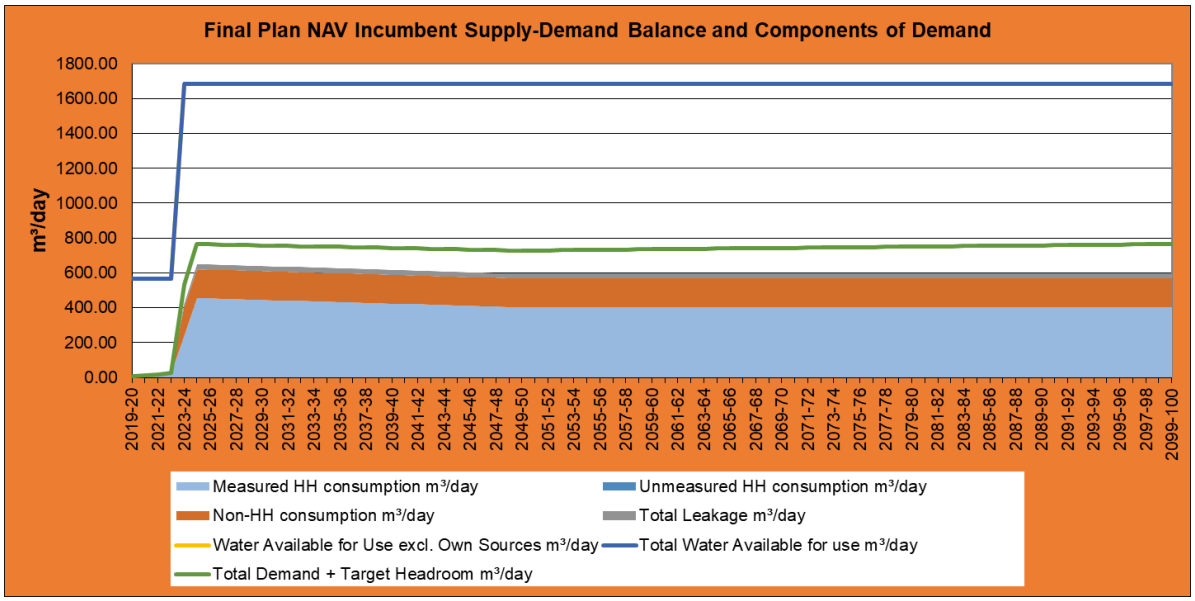

Figure 6-36 Final Plan Supply-Demand Balance for South West Water Area

SOUTHERN WATER

Figure 6-37 Southern Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 12251 dwellings across the Southern Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.34 on a site-by-site basis.

CURRENT DEMANDS

Currently 4339 (35.4%) out of a projected final total of 12251 domestic units are connected. The current water demand across IWNL sites in the Southern Water supply area is 1727.76 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 12251 domestic properties and 54 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 2522 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 3171.59 m^3/d with an additional 384.64 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 1298.97 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.35 and 6.36.

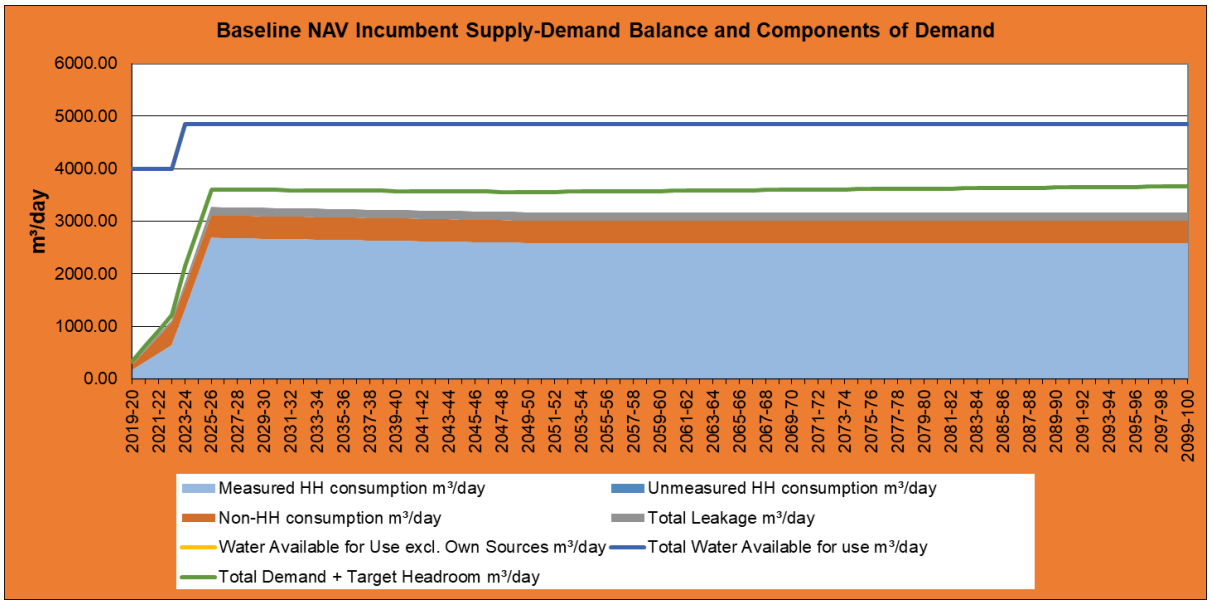

Figure 6-38 Baseline Supply-Demand Balance for Southern Water Area

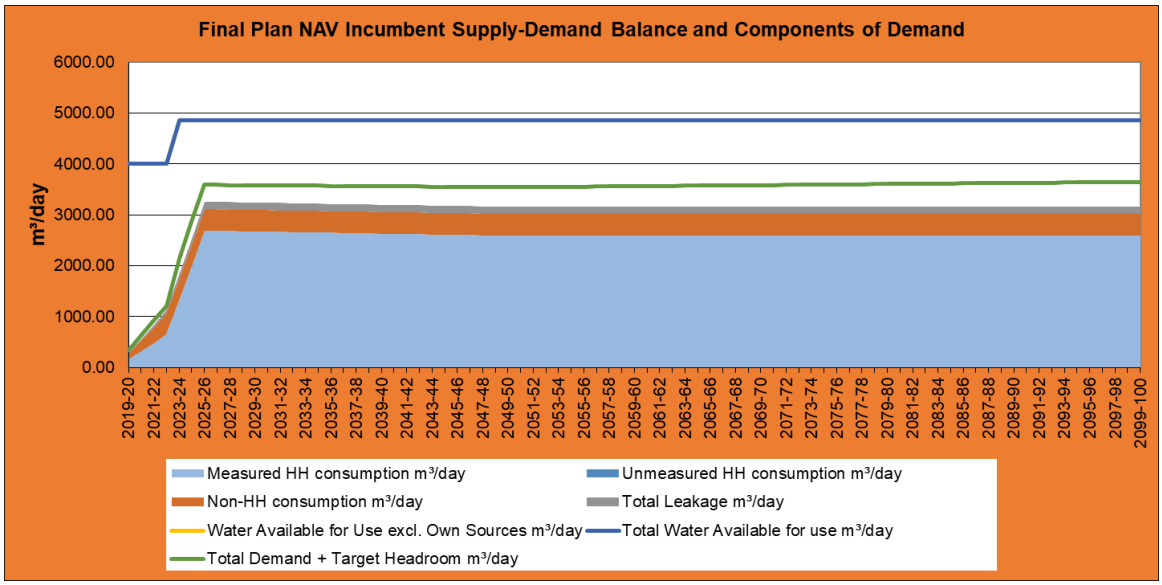

Figure 6-39 Final Plan Supply-Demand Balance for Southern Water Area

THAMES WATER

Figure 6-40 Thames Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 37,321 dwellings across the Thames Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.37 on a site-by-site basis.

CURRENT DEMANDS

Currently 8,992 (24%) out of a projected final total of 37,321 domestic units are connected. The current water demand across IWNL sites in the Thames Water supply area is 6,086.61 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 37,321 domestic properties and 626 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 2,248 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 13239.57 m^3/d with an additional 1343.08 m^3/d headroom allowance.

The supply-demand balance is projected to exceed in 2033/34 until 2039/40 if no further action is taken. We have projected a PCC reduction of 110 by 2050, in line with the other WRZ. However, this WRZ will require a reduction ahead of this target. Additional measures such as leakage monitoring and targeted water wise messaging will be required to aid a positive supply-demand balance within the planning period. The available headroom is 7013.40 m^3/d by 2049/50. The projected balance is illustrated in Figure 6.38 and 6.39.

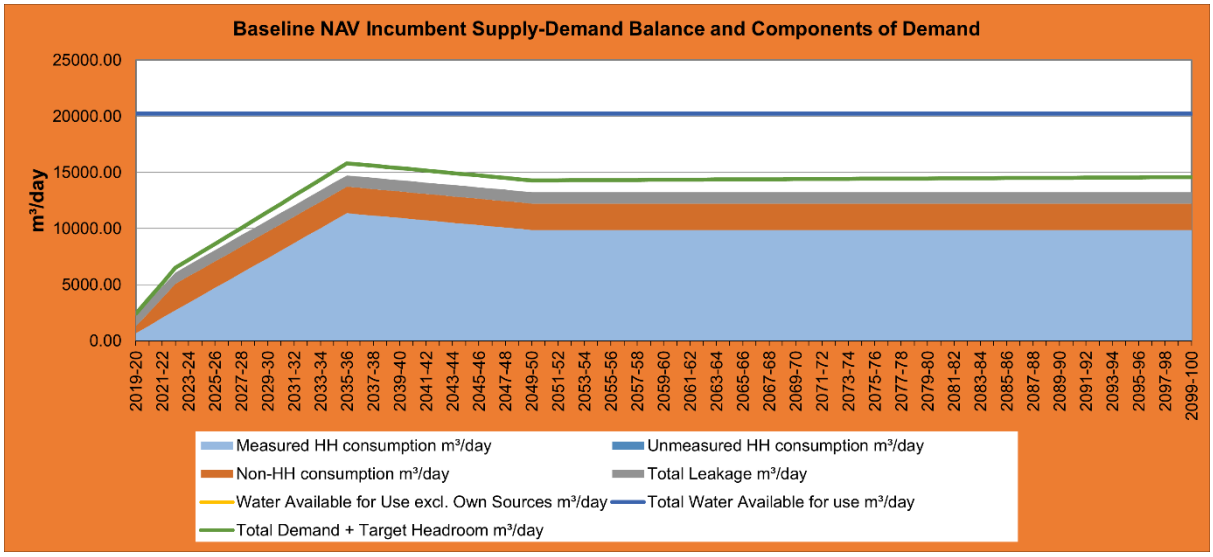

Figure 6-41 Baseline Supply-Demand Balance for Thames Water Area

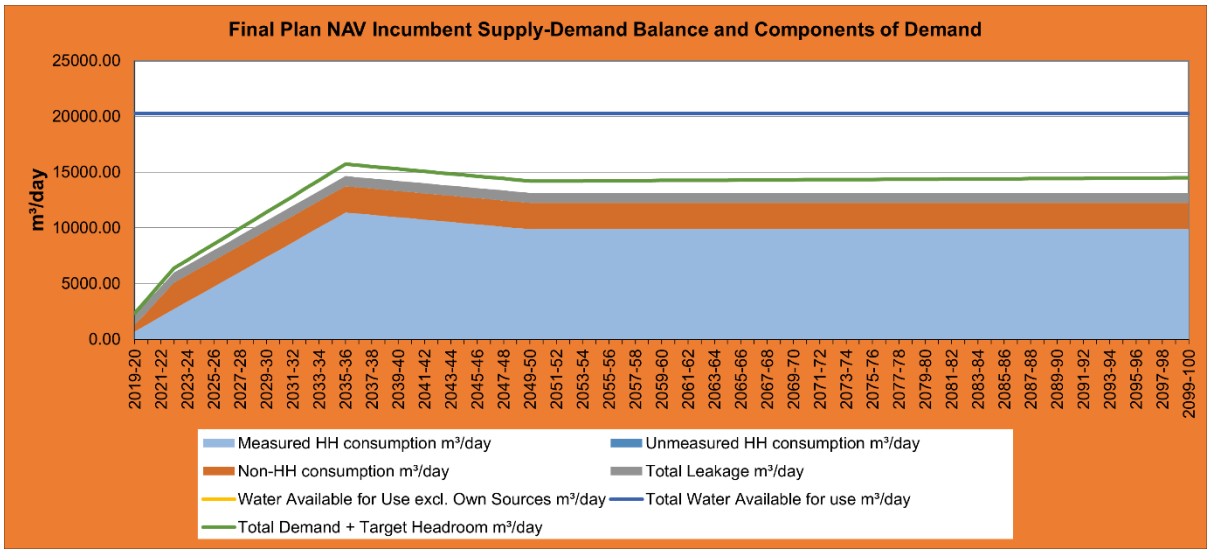

Figure 6-42 Final Plan Supply-Demand Balance for Thames Water Area

UNITED UTILITIES

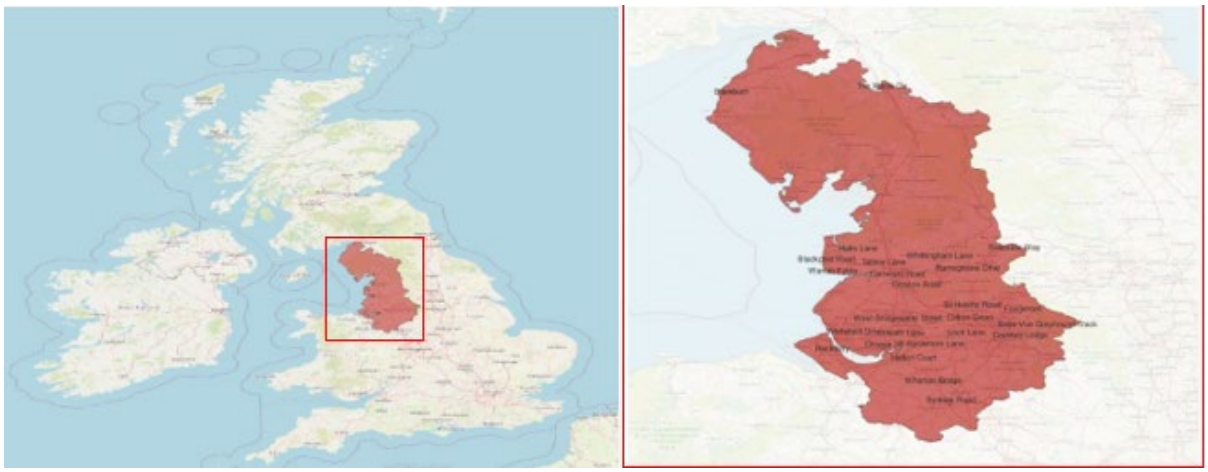

Figure 6-43 United Utilities Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 11841 dwellings across the United Utilities Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.40 on a site-by-site basis.

CURRENT DEMANDS

Currently 5249 (44.3%) out of a projected final total of 11841 domestic units are connected. The current water demand across IWNL sites in the United Utilities Water supply area is 1416.83 m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 11841 domestic properties and 2 commercial units of varying type

at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 2665 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 2050.44m^3/d with an additional 370.00m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 2250.00m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.41 and 6.42.

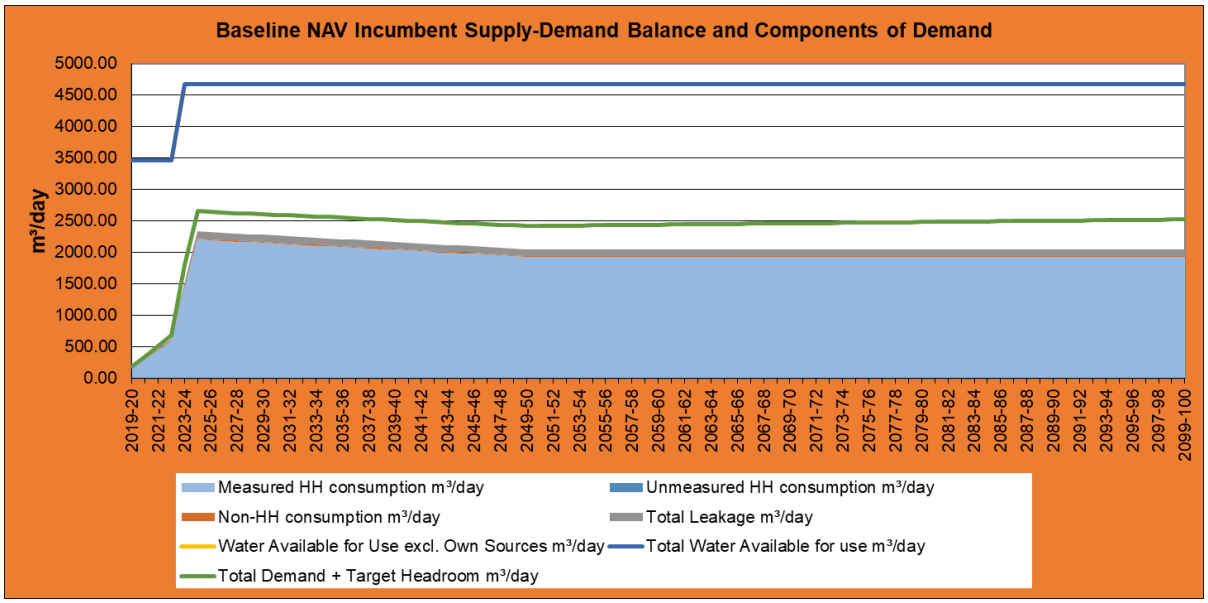

Figure 6-44 Baseline Supply-Demand Balance for United Utilities Water Area

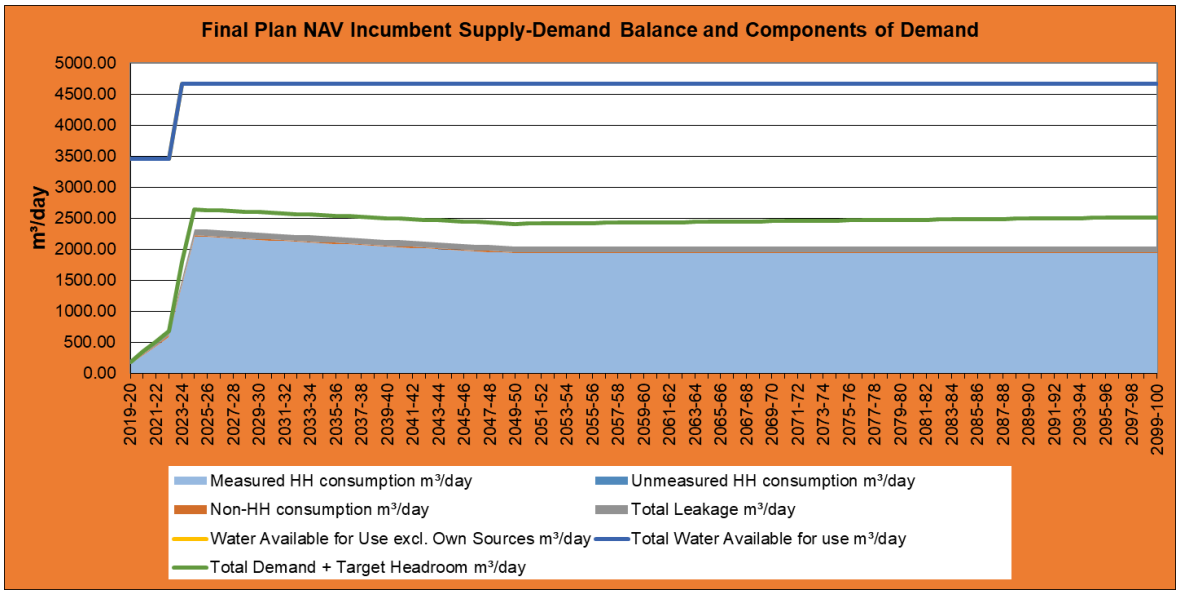

Figure 6-45 Final Plan Supply-Demand Balance for United Utilities Water Area

WESSEX WATER

Figure 6-46 Wessex Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 5861 dwellings across the Wessex Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.43 on a site-by-site basis.

CURRENT DEMANDS

Currently 906 (15.5%) out of a projected final total of 5861 domestic units are connected. The current water demand across IWNL sites in the Wessex Water supply area is 378.12m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 5861 domestic properties and 22 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 654 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 756.39 m^3/d with an additional 211.21 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 1698.48 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.44 and 6.45.

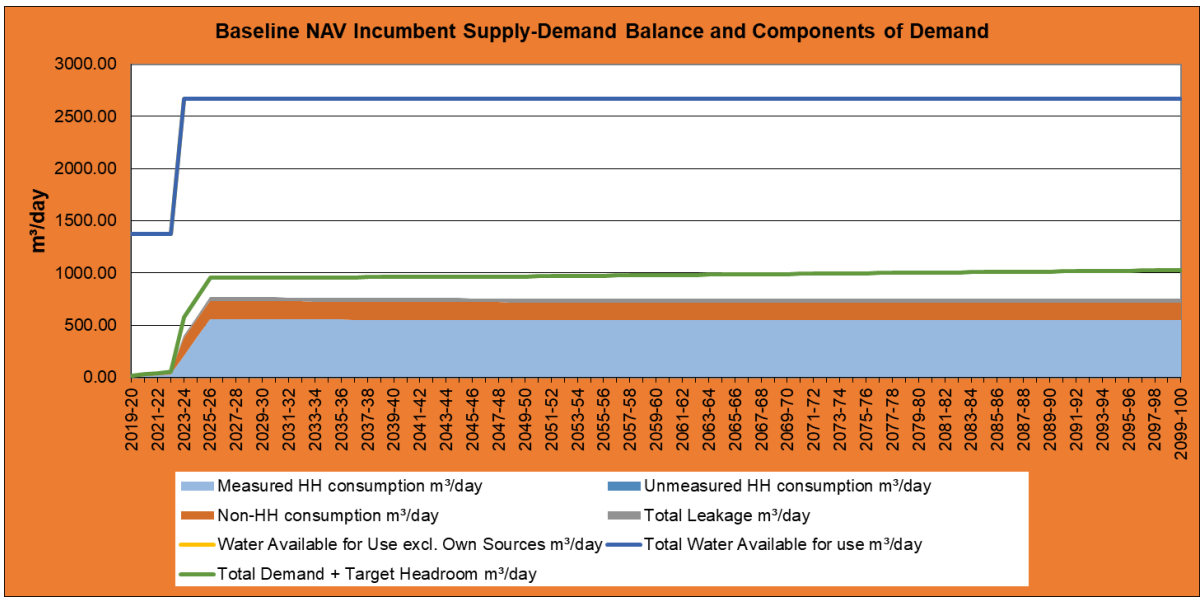

Figure 6-47 Baseline Supply-Demand Balance for Wessex Water Area

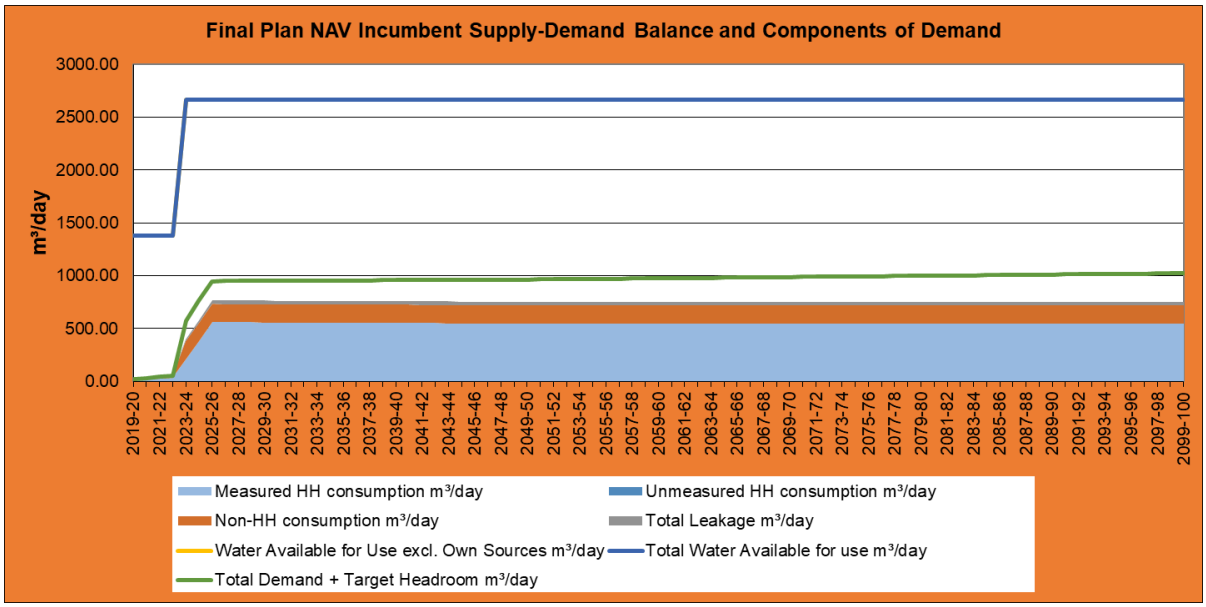

Figure 6-48 Final Plan Supply-Demand Balance for Wessex Water Area

YORKSHIRE WATER

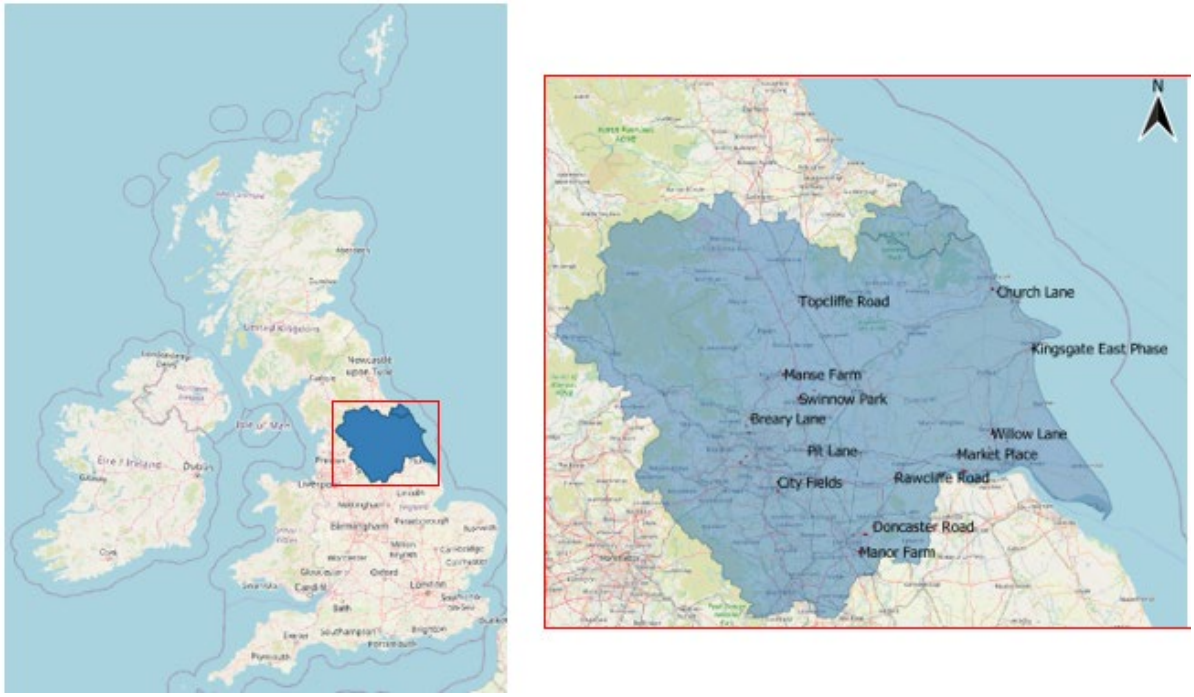

Figure 6-49 Yorkshire Water Supply Area

CURRENT WATER SUPPLY ARRANGEMENTS

IWNL have negotiated initial bulk supply agreements to supply 17409 dwellings across the Yorkshire Water supply area. The maximum quantities to be supplied under this agreement are listed in Figure 6.46 on a site-by-site basis.

CURRENT DEMANDS

Currently 8391 (48.2%) out of a projected final total of 17409 domestic units are connected. The current water demand across IWNL sites in the Yorkshire Water supply area is 2556.61m^3/d.

DEMAND FORECASTS AND PROJECTIONS

There will be an estimated 17409 domestic properties and 33 commercial units of varying type at full build-out. The precise rate of development is unknown as it will depend on many factors. For the purpose of resource planning, we have assumed that an average of 3595 units will be built each year.

THE SUPPLY-DEMAND BALANCE

Total demand in the zone increases steadily until the projected full build-out is achieved. Headroom increases very slightly as uncertainty increases into the future. Leakage remains low but does increase as the distribution network ages Total demand in 2049/50 (including leakage) is estimated to be 3391.73 m^3/d with an additional 537.47 m^3/d headroom allowance.

The supply-demand balance is projected to remain in surplus throughout the planning period with an available headroom of 2855.14 m^3/d in 2049/50. It is therefore concluded that if the forecasts are reliable, no measures additional to routine leakage control and normal regard for the efficient use of water will be required to maintain a positive supply-demand balance within the planning period. The projected balance is illustrated in Figure 6.47 and 6.48.

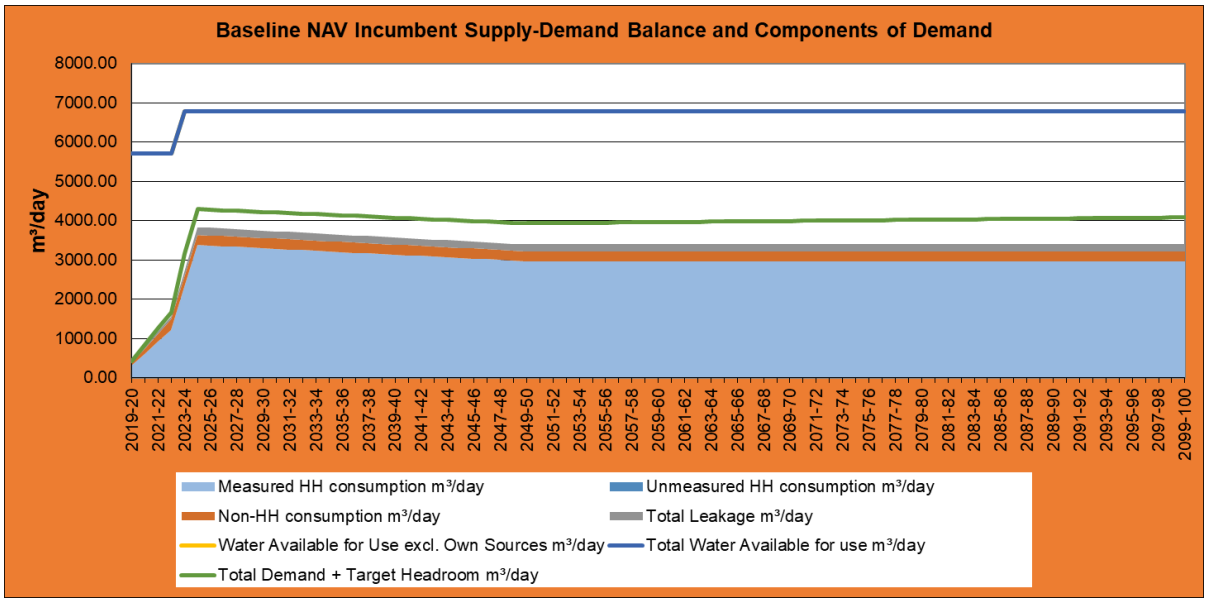

Figure 6-50 Baseline Supply-Demand Balance for Yorkshire Water Area

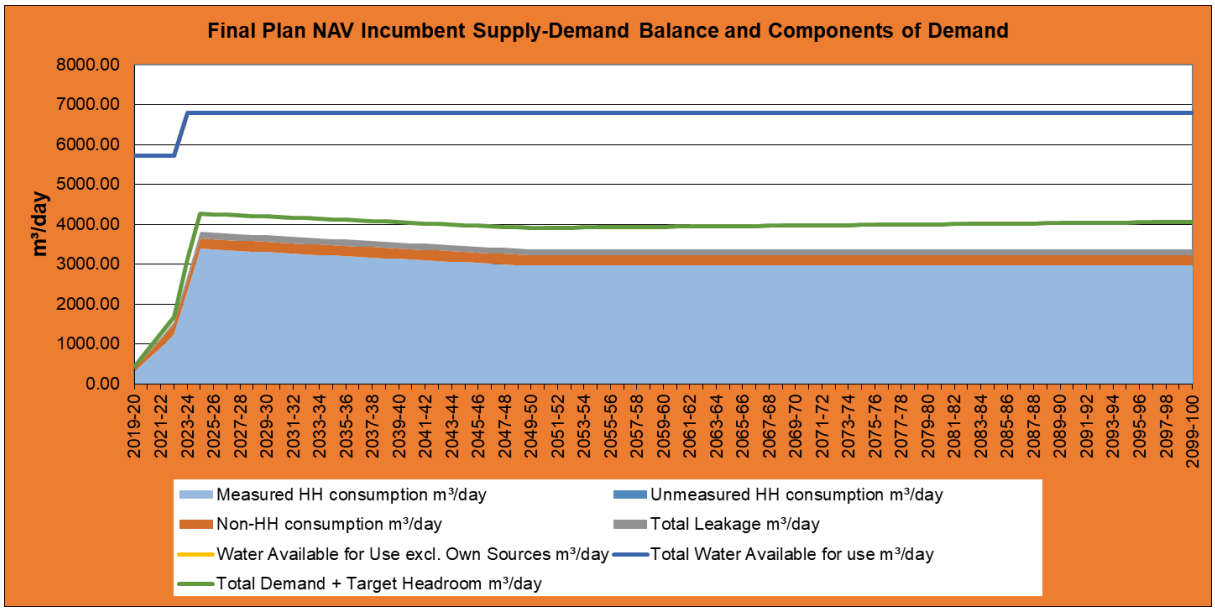

Figure 6-51 Final Plan Supply-Demand Balance for Yorkshire Water Area

7 NATIONAL ENVIRONMENT PROGRAMMES & WATER FRAMEWORK DIRECTIVE

IWNL will work closely with the incumbent 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); River Basin Management Plan; Local Nature Recovery Strategies; Biodiversity net gains.

However, given that IWNL will not be operating any of its own sources, in this WRMP it is not considered to be a major issue requiring significant addressing within the plan.

8 STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

The SEA process enables all options considered by IWNL during the formulation of the preferred strategy to be appraised against IWNL's own environmental objectives. This process therefore allows IWNL to demonstrate how it has considered the most environmentally favourable solutions within its overall strategy.

However, while the company will work closely with the incumbent water company as appropriate, given that it will not be operating any abstraction sources it is not considered necessary to address this topic specifically within the WRMP.

9 REGIONAL GROUPS AND PLANNING

IWNL is geographically diverse and has insets in the following regional planning groups:

- Water Resources North
- Water Resources West
- Water Resources East
- Water Resources South East
- West Country Water Resources

While IWNL will work closely with the different Regional Planning groups as appropriate, given that it will not be operating any abstraction sources it is not considered necessary to address this topic specifically within the WRMP. Additionally, IWNL aligns the services levels to the incumbent and have the same target of reducing PCC to 110 by 2050.

10 DIFFERENCES BETWEEN WRMP19 AND WRMP24

Our progress on our WRMP19 has been reported annually and these annual reports have been published on our website. These also report on any changes to demand, for example during the COVID19 pandemic.

The main changes in methodology between WRMP19 and WRMP24 is the use of UKCP18 for climate change predictions. Further, the data tables for WRMP24 are NAV specific where the forecast is examined by incumbent and whole company rather than by inset.