



Revised Draft Water Resources Management Plan 2024

Approach to inclusion of NAVs in WRMP tables

1 Introduction

Water Resources South East (WRSE) companies, which include Southern Water, were asked by the Environment Agency to include the impact of New Appointments and Variations (NAV) in their Water Resource Management Plan 2024 (WRMP24) tables.

We have consequently made changes in:

- Table 1g: WC Level - Existing transfers - Potable water transfers: Assuming that all exports to NAVs are potable, this table should be used to list each inset agreement.
- Table 3a, 3c, 3d and 3f:
 - Contractual volumes should be shown in 5BL (assuming all exports are potable)
 - The impact on water delivered (12BL, 14BL), USPL (23BL, 25BL), population (37BL, 39BL) and properties (31BL, 34BL, 34.1BL) should also be taken into account to ensure that the impacts of NAVs are not double counted (this assumes all properties in insets are metered as they are new properties).

This instruction came after the revised draft WRMP24 plans had been issued in August 2023 and as such has not been taken account of in the Water Resources South East (WRSE) investment modelling and data collation that was used to develop the WRSE Regional Plan as well as the WRMP24s of its member companies, including Southern Water.

Prior to the issuance of this instruction, each NAV was treated as if it were part of a water company water resource zone (WRZ) in terms of growth (population and properties) and demand. The impact of this is that the contractual volumes of each NAV exceed the predicted demand, especially in the short term as these developments usually take several years to reach capacity whereas contractually the full volume can be taken within a short period of the contract being signed. This excess headroom in each NAV aggregates across each WRZ thus leading to additional water that needs to be accounted for in the supply demand balance.

2 Raw Data

Data has been collated from a number of sources:

- NAV company draft WRMP24 plans:
 - Leep: [LNWL WRMP24 Tables — Leep Utilities](#)
 - IWNL: [WRMP24: \(iwnl.co.uk\)](#)
 - ICOSA: [icosawater-draft-wrmp-2022.pdf \(icosawater.co.uk\)](#)
- Southern Water data: This is generally an unstructured list of NAVs and Individual digital contracts. Paper contracts for older agreements were not reviewed.
- Ofwat: [NAV consultations - Ofwat](#)

There are several issues with the data that needs to be considered/accounted for with assumptions:

- In some instances, the NAV data (in particular IWNL) and Southern Water data differ.
- The NAV draft WRMPs were issued in 2022 and accounted for insets up to a certain date. The Environment Agency advised “Where possible, IWNL should include in its final WRMP new sites that have been or will be granted between draft and final WRMP” ([IWNL-dWRMP-NAV-consultation-response-letter-Final Redacted-2.pdf \(ofwat.gov.uk\)](#))
- The rate of growth within in each inset and information on consumption, underground supply-pipe leakage (USPL) and population is not available (information on when the development should be completed is available in the Ofwat source, but these are all individual documents that would require significant time to collate).
- Data on water company zones provided by NAVs does not always map to actual Southern Water WRZs.

As such the following assumptions have been made (other than for a few insets which are stated in section 4):

- Occupancy is 2.4 people/property for households and is 33.333 people/property for non-households (based on existing Southern Water data).
- Per Capita Consumption (PCC) is 125litres/head/day (l/h/d), based on government policy on new builds. We note the official guidance is 110l/h/d in water stressed areas like Southern Water supply area, but this does not seem to be reflected in the NAV plans or contractual volumes. So, this figure has not been used. If it were, the excess headroom would be greater.
- Underground Supply Pipe Leakage (USPL) is 17.9 litres/property/day (based on Southern Water averages). As these are new properties, USPL should be negligible. However, each NAV WRMP does account for leakage, so this has been kept.
- Non-household (NHH) consumption is 2,000litres/property/day (based on Southern Water averages).
- Each development takes 5 years to complete from the year the contract is signed, and the growth is uniform over that period.
- Insets listed in Southern Water datasets should be used as this is more up to date than the draft WRMPs.
- Where Southern data differs from NAVs, Southern Water data is used, except in a few instances where the Southern Water contractual volumes greatly exceed the expected demand based on the number of properties in the NAV.
- The WRZ for a NAV is based on the centroid of the postcode Southern Water holds for the NAV. In 2 instance this places the inset in South East Water’s area of service but just outside the border with Southern Water. In these instances, it is assumed that these are served from the Southern Water network in the WRZ just across the border.

3 Adjustments

3.1 WRP Table 1

Each NAV inset is listed in WRP Table 1 using the following logic:

- Deployable Output (DO) columns are based on the maximum export to the NAV to date. It is recognised that not all NAVs are active and few NAVs are fully developed.
- Annual limit is the contractual volume.
- The additional note column includes data on if the NAV is active and when it was signed.

3.2 WRP Table 3

WRP Table 3 has been populated as follows:

- For each inset in a WRZ the following are separately calculated and summed at zonal level (the breakdown by inset is available in the background data to Table 3)
 - The contractual volumes will be applied to 5BL in all years from and including the year the inset was approved.
 - The demand (including USPL), population and properties for each inset are linearly profiled over the assumed time for the development to complete (see the assumptions in section 2)
- The above can lead to a deficit in a WRZ in any given year if the prior (before NAV adjustments) final supply demand balance (50FP) is less than the difference between the demand and contractual amount of the NAVs in the WRZ. If this is the case, then the headroom (47BL and thus also 48BL) is reduced by the required amount to ensure the supply-demand balance is 0. This adjustment currently applies to both baseline (3a) and final planning (3c), although it can be adapted to only apply to final planning(3c).
 - Each WRZ was reviewed to ensure that the revision of headroom ensures there is still always a positive headroom.

4 Exceptions

4.1 Assumption changes

The following table lists all exceptions to the assumptions documented in Section 3. These adaptations have either been made:

- based on information in the NAV draft WRMP24 (Time to Complete column) or:
- to prevent negative growth in a WRZ as under the default assumptions there are more new NAV properties in a year than has been assumed for growth (e.g. Toddington Lane); or
- to make the demand more reflective of the contractual volume than it would be with the default assumptions.

Report Name (SEMD)	USPL (litre/property/day)	Assumed NHH consumption (litres/property/day)	Time to complete (years)
ICOSA: Rochester Riverside		20,000	
ICOSA: Toddington Lane			10
ICOSA: Stones Farm		20,000	
ICOSA: Westridge Village			1
IWNL: NES Crawley		1,500	
IWNL: North Whiteley		10,000	
IWNL: Cryalls Lane/Wises Lane		20,000	
IWNL: Bargate Quarter		10,000	

IWNL: Sun Lane		20,000	
IWNL: Horsham Enterprise Park		20,000	
IWNL: Sedlescombe Road North		20,000	
Leep: Hills Farm Lane	5		10
Leep: Barton Farm 2A		20,000	10
Leep: Chatham Waters		20,000	10

4.2 Contract limit changes

In addition, the following INWL insets are more recent agreements and do not currently show in the NAV WRMP, the Southern Water contractual volume for these insets far exceeds (between 3 and 5 times) the expected demand and thus create a large headroom in the inset for which there is insufficient capacity to compensate for as such. Instead, the assumption has been made that the contractual volume is 10% greater than the expected consumption:

- Northfleet in Kent Medway West (KMW) WRZ
- View Road (KMW)

4.3 HSW DYCP exception

Under the DYCP scenario for Hampshire Southampton West (HSW) WRZ after 2039-40, the current baseline headroom is already negative in several years from a prior fix to update the demand management savings to match PR24, after the rdWRMP24 had already been locked down. The headroom in HSW went negative as there is very little headroom to start with as there is no source in HSW under DYCP scenario in later years. As such there was no headroom to take the excess NAV headroom from. In this case the following steps have been taken:

- A further adjustment is calculated to put the headroom back to what it should have been (0.04MI/d)
 - Calculated as 0.04 minus the baseline headroom (which is negative)
- The emergency option for the WRZ (Option ID: SWS_HSW_EF-OTR_ALL_ALL_emergency deficit; Option Name: Demand adjustment (HSW): Headroom adjustment for Regional Plan integrity) has been added in and given the flow required to balance the WRZ.
 - Calculated as 0.04 minus the baseline headroom (which is negative) and plus the excess headroom from the NAVs.
 - This on average (over the years) is a flow of 0.083MI/d with a maximum of 0.11MI/d in 2045.

At present the correction is only made to the preferred plan (although it affects all branches) is inserted against 14.1FP which is measured demand reductions.