WRE

Hidden & Transient Populations

Definition & Estimation

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1 Introduction

Context

1.1 Each Water Company has a regulatory obligation to publish a 'water balance', which reconciles the components of water demand with the total volume of water supplied. Some components of the water balance can be directly measured, whilst others require estimation.

1.2 Measurement inaccuracies or errors in estimation methods can result in a reconciliation imbalance, contributing towards 'unaccounted-for-water'. This includes apparent losses, broadly defined as 'water delivered to customers but not accounted for', and real losses such as leakage. To be considered good practice, the water balance should have a residual volume of unaccounted for water of ±2%[1].

1.3 The size of each Water Company's customer population, disaggregated into measured and unmeasured household and non-household populations, is a key component of the water balance. These data are critical to the estimation of demand and leakage components. Any population that remains unrecorded potentially increases the volume of unaccounted-for-water, negatively impacting upon the quality of the water balance and therefore the robustness of water resource management and business planning.

1.4 Whilst published population statistics from the Office for National Statistics (ONS) provide robust and reliable estimates of the population 'usually resident' within each Water Company's area of operation, there are uncertainties with regards to additional *sub-populations* that may not be included in these official statistics.

1.5 Estimation of these 'hidden and transient' (H&T) populations is an important component of the water balance calculation and is a key input to the industry's Water Resource Management Plan (WRMP) process and the newly-formulated Drainage and Wastewater Management Plan (DWMP) activities.

This Document

1.6 This document is a methodological guide to the estimation of H&T populations. It provides a summary of the definitions, data inputs, assumptions and estimation methods that apply to the calculation of H&T populations for Water Industry geographies.

1.7 Evidence has been drawn from a mix of Census, survey and administrative sources, in addition to published research. Data has been gathered for a range of geographical areas including national,

[1] Ofwat. (2018). Reporting Guidance – Leakage.
https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf

regional, local authority areas, postal areas and Census output areas (OAs). The estimation process includes scaling to Water Industry geographies.

1.8 H&T population estimates are presented as 'Low', 'Medium' and 'High' totals, reflecting the uncertainty associated with the process.

1.9 This document accompanies the H&T population estimates that have been produced for each of the **32 Water Resource Zones (WRZs)** included within the **Water Resources East (WRE)** regional planning initiative (Figure 1). Output has been provided in an accompanying Microsoft Excel workbook.

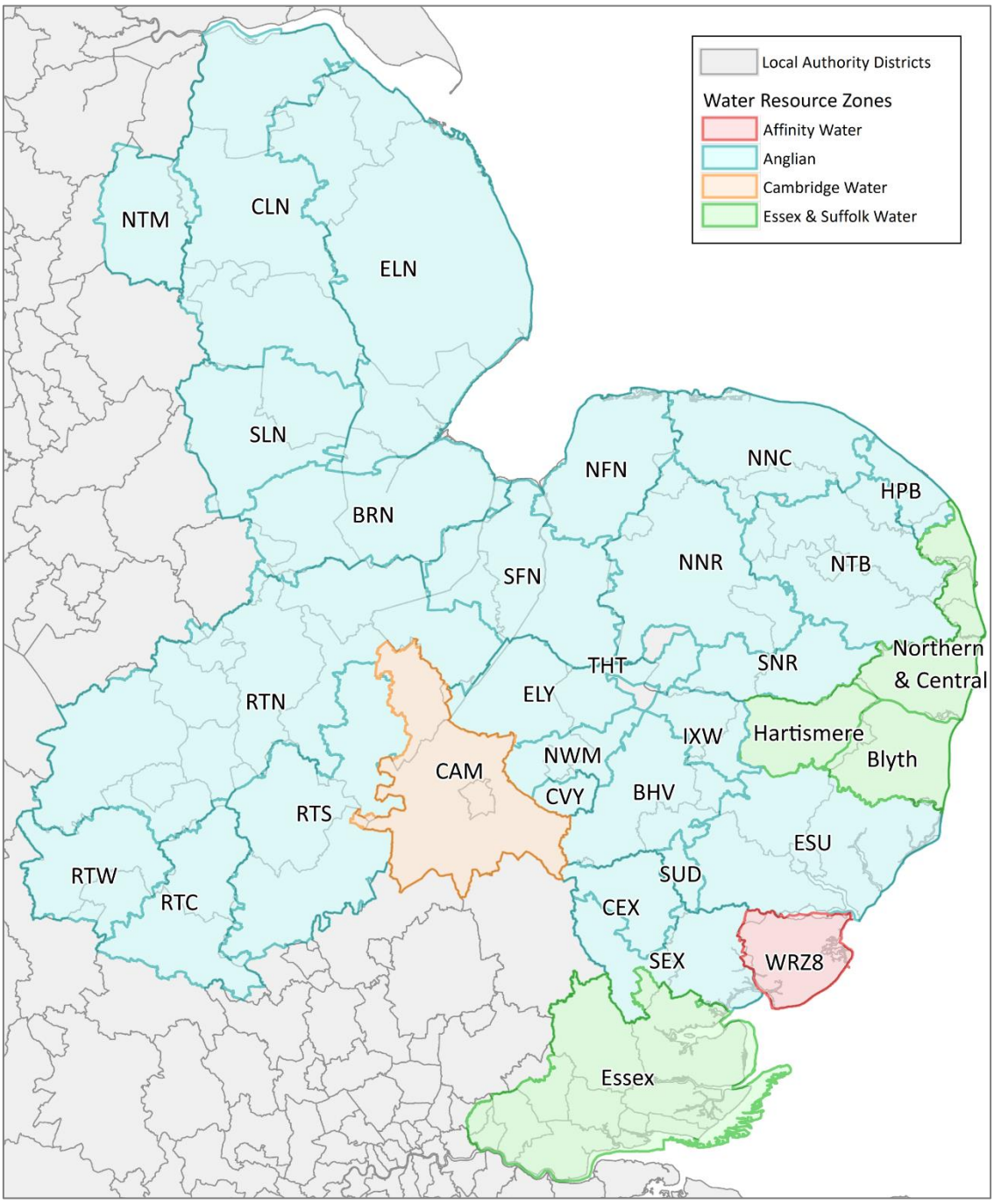


Figure 1: WRE Water Resource Zone geography

2 Population Definitions

2.1 Water Companies supply water (and remove wastewater) to (and from) industrial, domestic and commercial customers and use a variety of methods to estimate water use by these different sectors. The water balance may be challenging to reconcile when there is a population that uses water but that is not explicitly accounted for in either official statistics or water company estimation methods.

2.2 In order to consider domestic water demand, each Water Company requires an estimate of the population resident in households and in communal establishments, to establish an estimate of per capita consumption (PCC) and wastewater generated in each water resource zone (WRZ).

2.3 The 2011 Census Glossary of Terms provides a definition of the 'usual resident' population that is the basis for Census and mid-year estimate population counts and that is the demographic starting point for WRMP/DWMP analysis:

> *The main population base for statistics from the 2011 Census is the usual resident population as at census day, 27 March 2011. Although the population base for enumeration included non-UK born short-term residents, this population is analysed separately and is not included in the main outputs from the 2011 Census. All statistics, unless specified, are produced using only usual residents of the UK.*
>
> *For 2011 Census purposes, a usual resident of the UK is anyone who, on census day, was in the UK and had stayed or intended to stay in the UK for a period of 12 months or more, or had a permanent UK address and was outside the UK and intended to be outside the UK for less than 12 months.*

2.4 Specific rules have been applied to the definition of what constitutes a person's place of usual residence.

> *For the 2011 Census a person's place of usual residence is generally the address in the UK at which they spend the majority of time. For most people this means their permanent or family home.*

2.5 The 2011 Census counted someone as usually resident at their permanent or family home if, on 27 March 2011:

> *They were temporarily away from home, for example on holiday, visiting friends or relatives or travelling (unless outside of the UK for 12 months or more),*
>
> *They were in a communal establishment such as a care home, hospital or similar establishment for less than six months,*
>
> *They were a baby born on or before 27 March 2011, even if still in hospital, or*

They had more than one UK address and were staying at the second address on census night.

2.6 In addition to people present at their permanent or family home, the 2011 Census counted someone as usually resident at an address if on 27 March:

They were a usual resident of the UK and present at an address on census night, even if only for one night, and had no other usual address in the UK.

2.7 Someone was not counted as usually resident at an address if, on 27 March 2011:

The address at which they were staying was not their usual address and they usually lived elsewhere in the UK (these people were counted as visitors to the address), or

They were away from their home address and had been staying or were expecting to stay in a communal establishment such as a care home or hospital for six months or more (these people were enumerated as usually resident at the communal establishment).

2.8 The majority of usual residents, either in households or in communal establishments, will have their water use captured, either directly through metering, or through unmetered usage (estimated from domestic consumption monitoring), which typically provides estimates of the water used by different household types. Students studying at higher education (HE) institutions are classified as a 'usual resident' at their term-time address, with their water use captured through metered activity or through unmetered estimation methods.

2.9 There are sub-populations that are not covered by the 'usual resident' definition. The largest of these sub-populations is the workplace population, which may differ substantially from the resident population. However, workplace demand is virtually all metered and so is assumed to be included in existing estimates of water demand.

2.10 Three sub-populations are considered to sit outside the Census definition of 'usual resident' population, whilst potentially contributing to the water-using population within each Water Company's geographical area of operation:

- Irregular migrants
- Short-term residents
- People staying at second addresses

2.11 In addition, short-stay visits have a significant 'transient' impact upon local populations. Visitor populations are typically classified into one of three groups, identified by broad 'purpose' of visit: (i) visiting friends and relatives (VFR); (ii) holidays; and (iii) business.

2.12 Whilst the majority of water use associated with visitor populations is likely to be captured through water meters at the homes of friends and relatives, at tourist sites, in hotels and in other types of commercial accommodation, it is important to quantify the potential scale of visitor population impacts upon WRZ demand.

2.13 Three visitor groups are considered here:

- Domestic day visitors
- Domestic night visitors
- Foreign night visitors

2.14 In the sections that follow, each of the sub-populations is considered in turn, identifying the definitions, data inputs, assumptions and methods that apply to the estimation of H&T populations for Water Industry geographies.

3 Irregular Migrants

Definition

3.1 Measurement of the irregular migrant population is particularly challenging as the population is more likely to elude statistical data capture and because there is no universally agreed definition of this particular sub-population.

> *The term 'irregular migrants' typically refers to the stock of migrants in a country who are not entitled to reside there, either because they have never had a legal residence permit or because they have overstayed their time-limited permit.*[2]

3.2 Irregular migrants may include those who have entered the country illegally, those who entered legally but have subsequently overstayed a time-limited visa, or those who have violated restrictions associated with a legal residence permit. However, there is a consensus that the majority of irregular migrants living in the UK are most likely to be those who have over-stayed a residence permit[3].

Evidence & Data

3.3 Whilst the subject of irregular migration maintains a relatively high profile, there has been a shortage of evidence on its measurement and population impact. For some time, the 'low', 'central' and 'high' irregular migrant estimates (for the UK) published in the 2009 London School of Economics (LSE) report by Gordon *et al.*[4], provided the only real basis for the calculation of irregular migrant counts.

3.4 In 2016, ONS published a 'frequently asked questions' note on long-term international migration[5], in which it posed the question:

> *Is it possible to produce an accurate figure for the number of people who are in the country illegally?*

3.5 In answering this question, ONS clarified that it does not produce official estimates of the size of the irregular migrant population, and states that:

[2] Vollmer, B. (2011). Irregular Migration in the UK: Definitions, Pathways and Scale, Briefing. Migration Observatory, University of Oxford.
[3] Düvell, F. (2009) Pathways into Irregularity: The Social Construction of Irregular Migration. Comparative Policy Brief, CLANDESTINO Research Project, Centre on Migration, Policy and Society, University of Oxford
[4] Gordon, I., Scanlon, K., Travers, T. & Whitehead, C. (2009). Economic Impact on London and the UK of an Earned Regularisation of Irregular Migrants in the UK. GLA Economics, GLA.
[5] Office for National Statistics. (2016). Long Term International Migration Estimates, Frequently Asked Questions and Background Notes. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/longterminternationalmigrationfrequentlyaskedquestionsandbackgroundnotes

> *By its very nature it is impossible to quantify accurately the number of people who are in the country illegally. For this reason, ONS does not produce estimates on the size of the illegal migrant population.*

3.6 Whilst ONS does not identify irregular migrants separately, it recognises that a proportion of this hidden population will be included within its data. Examples include migrants who overstay their visa, who would have been counted in ONS immigration figures by the International Passenger Survey (IPS) when they originally entered the country; plus, migrants who arrived illegally and then subsequently claimed asylum.

3.7 Furthermore, ONS suggests that a 'notable proportion' of the illegal migrant population will have been captured by the 2011 Census enumeration process. The 2011 Census initially captured 94% of the resident population with adjustments subsequently made to estimate the whole population using the Census Coverage Survey. Whilst the enumeration process will have captured a proportion of the illegal migrant population, ONS does not indicate what this proportion is likely to be. Given the clandestine nature of irregular migrants, it remains impossible to robustly quantify the proportion of this population that is captured in ONS estimates.

3.8 Although ONS does not produce its own estimates of irregular migrants, its 2016 long-term international migration guide references a 2005 report published by the Home Office. The report sought to review the methods used by other countries to estimate the size of the illegal population and consider their applicability to the UK. Using the 'Residual Method', the Home Office report concluded that the central estimate of the UK's total unauthorised migrant population was 430,000 in 2001[6].

3.9 ONS confirms that the estimate of the number of irregular migrants in the UK was subsequently updated by Gordon *et al*. at the LSE[7]. The 2009 report accounts for the change in the numbers of resident failed asylum seekers, overstayers and illegal entrants and considers the impact of regularised migrants (such as from EU accession countries) and UK born children to irregular migrant couples. The LSE report provided a central estimate of 618,000 irregular migrants at end-2007.

3.10 A 2011 study by the Institute for Public Policy Research (IPPR) estimates that an additional 165,000 irregular migrants could be added to the LSE report's central estimate of 618,000 to account for legal migrants who are working illegally[8]. However, from a water-use perspective, as legal migrants, these illegal workers will be captured by official statistics. The IPPR study does conclude with an important observation that:

> *A major reduction in irregular immigration in the UK will be difficult to achieve and will take a long time, particularly with respect to reducing significantly the population of irregulars that is long established in this country.*

[6] Home Office. (2005). Sizing the unauthorised (illegal) migrant population in the United Kingdom in 2001. London, Home Office.
[7] Gordon, I., Scanlon, K., Travers, T. & Whitehead, C. (2009). Economic Impact on London and the UK of an Earned Regularisation of Irregular Migrants in the UK. GLA Economics, GLA.
[8] Finch, T. and Cherti, M. (2011). IPPR., No Easy Options., Irregular Immigration in the UK

3.11 In 2017, Palmer and Wood cited evidence relating to the number of foreign nationals that fail to return to their home country, stating:

> *Extrapolating from, amongst other figures, the number of illegal immigrants that enforcement and other immigration officials encounter every year, the Home Office has reached the conclusion that every year, between 150,000 and 250,000 foreign nationals fail to return to their home country.*

3.12 Reflecting on this evidence, the report suggests that the current number of illegal immigrants in the UK is likely to be well above 1.2 million.[9]

3.13 Migration Watch published a paper in 2018, concluding that:

> *The best estimates suggest there may now be over a million illegal immigrants in the UK.*[10]

3.14 Using new data relating to UK exit checks, visa overstayers, detected clandestine arrivals and failed asylum seekers, Migration Watch estimated a net addition of 70,000 irregular migrants per year. However, it also states:

> *The number of undetected entrants may mean the figure is significantly higher.*

3.15 As a counter to these studies, suggesting irregular migrant estimates from the LSE report may be too low, a study using evidence from detention data from the Metropolitan Police and UK Border Agency (UKBA) joint Operation Nexus, raised the possibility that estimates from the LSE report were too high[11]. This analysis points to a UK-wide estimate of approximately 70,000 irregular migrants, a total that would appear to be infeasibly low in the context of other evidence.

3.16 The most recent evidence on unauthorised migrant populations has been published by the US-based Pew Research Centre[12]. Using its experience of unauthorised population estimation in the US, the Pew research has used a variety of data sources and methods to estimate comparable totals for 32 European countries, including the UK. In summary, the Pew methodology is described as follows:

> *The Centre used the residual method in estimating the size of the unauthorized immigrant population in the UK. Estimates for the total non-EU-EFTA-citizen population were drawn from those submitted by the UK to Eurostat. These figures are estimated based on census and survey data. Then, the number of non-citizens with residency permits reported by the UK to Eurostat were deducted from non-citizen population estimates from Eurostat. Since these permit data are calculated differently in the UK than in other European countries, a range of estimates based on the duration of the permits were produced. The low estimates use permits of three months or longer. The high estimates use permits of 12 months or longer, the approach used for most other European countries. High estimates were adjusted for undercount in the census-based total population figures following the*

[9] Palmer, A. and Wood, D. (2017). The Politics of Fantasy: Immigration Policy in the UK after Brexit. London, CIVITAS.
[10] Migration Watch. 2018. Illegal Immigration: What can be done? https://www.migrationwatchuk.org/briefing-paper/455
[11] Portes, J. (2012). Illegal Migrants: Can't Even Get Themselves Arrested?
[12] Connor, P. and Passel, J. S. (2019) Europe's Unauthorized Immigrant Population Peaks in 2016, Then Levels Off. Pew Research Center. Global Attitudes and Trends https://www.pewresearch.org/global/2019/11/13/europes-unauthorized-immigrant-population-peaks-in-2016-then-levels-off/

approach used by the UK Home Office for the 2001 estimate of the unauthorized immigrant population. An undercount adjustment of 10% was added to the preliminary low unauthorized immigrant population estimate without asylum seekers with pending cases.

3.17 The Pew research classifies unauthorised migrants as people living without a residency permit in their country of residence who are not citizens of any European Union or European Free Trade Association (EFTA) country. 'Low' and 'High' estimates for each country have been published, with a range of 800,000–1,200,000 for the UK, giving a mid-point estimate of 1,000,000 unauthorised migrants in 2017.

Estimation Methodology

3.18 The estimation of irregular migrant populations for water industry geographies uses the Pew Low-High range as it's starting point: 800,000–1,200,000. This is a 2017 estimate, but no 'uplift' is deemed necessary as the Pew research indicates a 2016 peak in unauthorised migrant totals. It is assumed that none of the irregular migrant population has been captured in official statistics.

3.19 The original research from Gordon *et al.* (2009) estimated that 70% of all irregular migrants were resident in Greater London, 30% in the rest of the UK. Recognising the more dispersed distribution of immigration effects across the UK since EU expansion in 2004, the estimation methodology assumes a revised 60–40% split in favour of Greater London.

3.20 Irregular migrant estimates for individual local authority areas have been derived using statistical evidence on National Insurance Number (NINo) registrations allocated to non-EU foreign nationals over the period 2011–2018. The Low, Medium and High UK irregular migrant totals have been allocated in proportion to each local authority's share of the non-EU NINo registrations, taking account of the 60–40% split in favour of Greater London.

3.21 There is no evidence of a 'seasonal' element to the impact of irregular migrant populations, so when presenting a monthly profile of the combined H&T evidence, irregular migrant totals have been allocated evenly across the calendar year.

3.22 The irregular migrant totals for local authority areas have been distributed to OA geographies using a combination of non-EU NINo registrations for Medium Level Super Output Areas (MSOAs) and non-UK born population totals for OAs. The OA-level estimates enable aggregation to Water Company WRZs, providing a Low, Medium and High estimate of irregular migrants for each.

4 Short-Term Residents

Definition

4.1 Statistics on short-term migrants (STM) and short-term residents (STR) are subject to separate publication by the ONS. An STM is defined as:

> *Someone who visits a country other than that of his or her usual residence for a period of between 1 and 12 months.*[13]

4.2 STM estimates are available based on three definitions:

> *United Nations (UN) definition of a short-term migrant - "a person who moves to a country other than that of his or her usual residence for a period of at least 3 months but less than a year (12 months), except in cases where the movement to that country is for purposes of recreation, holiday, visits to friends or relatives, business, medical treatment or religious pilgrimage"*
>
> *3 to 12 months - all reasons for migration, this includes the UN definition and the categories "work" and "other".*
>
> *1 to 12 months - all reasons for migration.*

4.3 A Census STR is defined as:

> *Anyone living in England and Wales who was born outside the UK and who intended to stay for a period of between 3 and 12 months, for any reason.*[14]

4.4 ONS measures STMs by identifying the actual time spent living in the UK, from departing short-term migrants captured by the International Passenger Survey (IPS). The 2011 Census captured the stock of non-UK born STRs at a particular point in time (those present on 27th March 2011).

[13] Office for National Statistics. (2017). Short-term International Migration for England and Wales: year ending June 2015. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/bulletins/shortterminternationalmigrationannualreport/mid2015estimates

[14] Office for National Statistics. (2013). 2011 Census: Non-UK born short-term residents in England and Wales. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/nonukbornshorttermresidentsinenglandandwales/2013-03-26

Data

4.5 STR statistics (Census Table MM02) provide a point-in-time measure of the additional stock of population resident in all geographical areas. These statistics have not been updated since the 2011 Census, so must be combined with more recent data to bring the evidence up-to-date.

4.6 Statistics on STMs (migrants who come to the UK for a period of at least three months but less than a year) have been subject to an annual update since 2011. These data provide both an indication of the comparison between STR and STM counts in 2011 and the scale of change in STMs since 2011. There is a lag in publication of these statistics, with the latest information available for full-year 2016.

Estimation Methodology

4.7 The 2011 Census STR statistics provide the starting point for the estimation of short-term residency within Water Industry geographies. These data provide totals for local authority areas.

4.8 The more recent STM statistics have been used to identify the likely trend in STR growth since 2011. STR estimates have been calculated to produce Low, Medium and High outcomes for each local authority area, as follows:

- The Low estimate is the 2011 Census STR count for each local authority area.
- The Medium estimate uplifts the Low estimate by the *absolute* change in the STM total for the local authority area (2011–2016).
- The High estimate uplifts the Low estimate by the average annual *percentage* change in the STM total for the local authority area (2011–2016).

4.9 There is some evidence of small seasonal differences in short-term residency activities, so a seasonality profile has been produced, adjusting the Low, Medium and High estimates in line with the quarterly split of (all) NINo registrations recorded in each local authority area.

4.10 The STR totals for local authority areas have been distributed to OA geographies using a combination of (all) NINo registrations for MSOAs and non-UK born population totals for OAs. The OA-level estimates enable aggregation to Water Company WRZs, providing a Low, Medium and High estimate of STR totals for each.

5 Second Addresses

Definitions

5.1 Second homes are a source of hidden water demand when used during the working week or as a holiday home. Second home householders are not included in the resident population estimate because they are 'visitors' at their second residences. They will spend part of their time in their second homes using water (although as a result they will use less water in their first homes).

5.2 The 2011 Census captured details on second addresses, defined as:

> *An address at which a person stays for more than 30 days per year that is not a person's place of usual residence. This includes addresses that are in the UK and those outside of the UK. Typical second addresses include armed forces bases, addresses used by people working away from home, a student's home address, the address of another parent or guardian, or a holiday home.*
>
> *If a person with a second address was staying at that address on census night, they were classed as a visitor to that address, but counted as a usual resident at their home address.*[15]

5.3 The 2011 Census provides a population-based statistic but allows a distinction between 'work', 'holiday' and 'other' types of second addresses based upon the local authority in which the second address is located. 'Other' types of second addresses include students home addresses and the address of another parent or guardian, for children of separated parents[16].

Data

5.4 The second address statistics provide a point-in-time estimate of the population that had a second address on census day 2011. These statistics have not been updated since the 2011 Census.

5.5 An alternative source of information on second homes is the local authority Council Tax register. However, this provides only a measure of properties, not population and may be subject to quality control issues associated with incomplete submission of data.

[15] Office for National Statistics. (2014). 2011 Census Glossary of Terms. https://www.ons.gov.uk/census/2011census/2011censusdata/2011censususerguide/glossary

[16] Office for National Statistics. (2012). 2011 Census: Number of people with second addresses in local authorities in England and Wales, March 2011. https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/2011censusnumberofpeoplewithsecondaddressesinlocalauthoritiesinenglandandwales/2012-10-22#other-second-addresses

Estimation Methodology

5.6 In the absence of a robust and reliable alternative, statistics from the 2011 Census form the basis of the second address population estimation methodology. These data provide second address population totals for each local authority area, for both 'working' and 'holiday' addresses.

5.7 For each local authority area, Low, Medium and High estimates have been derived for 'working' and 'holiday' addresses, as follows:

- For the 'working' second address population, the estimates assume that the second address is occupied for one (Low), three (Medium) or five (High) nights per *week*.
- For the 'holiday' second address population, the estimates assume that the second address is occupied for four (Low), seven (Medium) or ten (High) nights per *month*.

5.8 To consider the potential level of counter flow to second addresses, three scaling factors have been applied, reducing the total by 20% under each of the Low, Medium and High outcomes.

5.9 The census data does not include evidence on the seasonal profile of second address activities, so when presenting a monthly profile of the combined H&T evidence, second address totals have been allocated evenly across the calendar year.

5.10 The second address totals for local authority areas have been distributed to OA geographies using data on unoccupied household spaces for individual OAs, again drawn from the 2011 Census. The OA-level estimates enable aggregation to Water Company WRZs, providing a Low, Medium and High estimate of second address totals for each.

6 Domestic & Foreign Visitors

Definition

6.1 Short-stay visits are the final element that are considered as part of the hidden and transient population within each Water Company's geographical area of operation. Whilst 'visitor' statistics are captured by the 2011 Census, they do not form part of the recorded usual resident population.

6.2 Whilst the majority of water use associated with visitor populations is likely to be captured through water meters at the homes of friends and relatives, at tourist sites, in hotels and in other types of commercial accommodation, it is important to quantify the potential scale of visitor population impacts upon WRZ demand. Three visitor groups are considered here:

- Domestic day visitors
- Domestic night visitors
- Foreign night visitors

6.3 'VFR', together with 'holiday' and 'business' visits, provide the broad categorisation of visitor flows, which are considered in this analysis.

Data

6.4 The Great Britain Day Visitor Survey (GBDVS)[17] provides a 3-year (2016–2018) average annual count of all tourism *day* visits (TDVs) for each local authority area. The GBDVS is based on responses received via a weekly online survey from a representative sample of adults aged 16+. The TDV statistics relate specifically to *leisure* visits, categorised as follows:

- Visiting friends or relatives (VFR)
- 'Special' shopping
- Going out for a meal
- Going on a night out
- Going out for entertainment
- Undertaking outdoor activities
- Other leisure/hobbies
- Watching live sporting events
- Going to visitor attractions
- General day out

6.5 The Great Britain Tourism Survey (GBTS) provides a 3-year (2016–2018) average annual count of domestic visitor *nights* for each local authority area. These counts relate to any journey away from home lasting one or more nights, to any destination within Britain, by any mode of transport, for any purpose, and staying in any type of accommodation. These visit statistics are categorised into VFR, holiday and business nights.

[17] GB Day Visits Survey: Latest results https://www.visitbritain.org/gb-day-visits-survey-latest-results

6.6 Data from the International Passenger Survey (IPS) provides a count of foreign visitor nights in 2016, 2017 and 2018 for each sub-region of the UK (a mix of counties and standard regions). These visit statistics are again categorised into VFR, holiday and business nights.

Estimation Methodology

Domestic Day Visitors

6.7 Within the GBDVS, regional statistics estimate that between 22–28% of day visits are associated with VFR, with 72–78% allocated to the variety of 'other' activities. These data, available for each local authority area, form the basis of the Low, Medium and High day visitor estimates.

6.8 To account for domestic day visits undertaken by children aged 0–15, the estimation methodology assumes that 30% of visits are from households with children. The Low estimate assumes no children are present, the Medium estimate assumes one child and the High estimate, two children.

6.9 The GBDVS presents *annual* visit statistics. The estimation methodology converts this to a *daily* equivalent with a division by 365. Each visit is assumed to have an average duration of six hours, enabling aggregation to an appropriate *daily* visitor population statistic.

6.10 Measuring the 'counter' flow of visitors out of an area is more problematic, with limited evidence to inform a robust estimation of overall net effects upon transient population totals. Different types of areas will have very different net effects, which in turn will be influenced by seasonality. To consider the potential level of counter flow of visitors, three scaling factors have been applied to the visitor estimates, scaling the net effect to 10% (Low), 50% (Medium) and 100% (High).

6.11 Average daily domestic day visitor statistics are derived for each local authority area, for each of the Low, Medium and High outcomes.

Domestic Visitor Nights

6.12 The GBTS provides *annual* totals for each local authority area on the number of domestic overnight stays, measured as number of nights (overnight stays). These data are recorded for VFR, holiday and business visitor nights. They have been converted to a *daily* equivalent with a division by 365.

6.13 To consider the potential level of counter flow of visitors, three scaling factors have again been applied to the visitor-night estimates, scaling the net effect to 10% (Low), 50% (Medium) and 100% (High).

6.14 Average daily domestic visitor night statistics are derived for each local authority area, for each of the Low, Medium and High outcomes.

Foreign Visitor Nights

6.15 The IPS provides an *annual* total for foreign visitor nights for each of 47 sub-regions of the UK, measured as number of nights (overnight stays). These data are recorded for VFR, holiday and business visitor nights. They have been converted to a *daily* equivalent with a division by 365.

6.16 The sub-regional visitor night totals have been allocated to local authority areas in proportion to bed-space statistics recorded in the latest Visit Britain Accommodation Stock Audit data ('hotels and similar accommodation')[18].

6.17 To consider the potential level of counter flow of visitors, three scaling factors have been applied to the visitor-night estimates, scaling the net effect to 30% (Low), 60% (Medium) and 100% (High).

6.18 Average daily foreign visitor night statistics are derived for each local authority area, for each of the Low, Medium and High outcomes.

Seasonality

6.19 The GBDVS and the GBTS provide evidence on the *seasonal* impact of visitors for each of the UK standard regions. These regional statistics have been used to generate a **seasonality profile** for each local authority area, providing estimates of visitor numbers for each month of the calendar year. The GBTS seasonality evidence is used as a proxy for the allocation of foreign night visits to a monthly profile.

6.20 The seasonality profiles presented in this report (and provided in the accompanying Microsoft XLS output) are based on the 'High' population total produced by the H&T estimation methodology; a 'maximum' population figure, taking no account of any counter-flow effects (Appendix A).

Distribution

6.21 In each instance, the VFR totals for individual local authority areas have been distributed to OA geographies using proportions derived from 2019 residential Postcode Address File (PAF) counts, whilst the Other, Holiday and Business totals have been distributed to OA geographies using proportions derived from 2019 visitor-based, business counts.

6.22 The OA-level estimates enable aggregation to Water Company WRZs, providing a Low, Medium and High estimate of domestic day visitors, domestic night visitors and foreign night visitors totals for each.

[18] Visit Britain Accommodation Stock Audit https://www.visitbritain.org/accommodation-stock

7 Summary

7.1 A summary of the hidden and transient population estimates is provided in the following series of tables. Statistics are presented for individual WRZs.

7.2 Irregular migrants and short-term residents are both important additions to the water-using population, excluded from ONS usual resident population counts. Second address populations are more transient in that they are estimates of short-stays at locations other than a usual residence (Table 1).

7.3 Domestic day visitor numbers are estimated from tourism day visits (TDV) recorded in the GBDVS. The Low-Medium-High totals relate to the likely degree to which the counter flow of visits impacts upon the 'net' effect of visitors within each area. The 'High' estimate is the maximum impact of visitor numbers, assuming no counter-flow from the usual resident population. Visits to Friends and Relatives (VFR) are deemed to be the category of short-stay day visit that is most likely to impact upon populations present at residential addresses. The 'other' category of visits encompasses a wider range of retail and leisure activities (Table 2).

7.4 Domestic night visitor numbers are estimated from the GBTS, with the total split between VFR, holiday and business trips. The Low-Medium-High totals relate to the likely degree to which the counter flow of visits impacts upon the 'net' effect of visitors within each area. The 'High' estimate is the maximum impact of visitor numbers, assuming no counter-flow from the usual resident population. Again, it is the VFR category that is most likely to impact upon populations at residential addresses (Table 3).

7.5 Foreign night visitor numbers are estimated from the IPS, with the total split between VFR, holiday and business. The Low-Medium-High totals relate to the likely degree to which the counter flow of visits impacts upon the 'net' effect of visitors within each area, with a higher range of net effects assumed for foreign visitors compared to domestic visitors (Table 4).

7.6 The visitor surveys provide evidence on the 'seasonal' profile of domestic and foreign visitors. This evidence has been used to produce a seasonality profile of visitor numbers for each WRZ. Using the 'High' estimates in all cases, the visitor estimates have been combined with the usual resident, irregular migrant, short-term resident and second address population estimates, to produce a seasonality profile for each WRZ (Appendix A).

Irregular, Short-Term & Second Addresses

Table 1: Irregular Migrant, Short-Term Resident and Second Address population estimates

Water Co.	WRZ ID	Water Resource Zone	2018 MYE	1. Irregular Migrants			2. Short-Term Residents			3. Second Addresses		
				Low	Medium	High	Low	Medium	High	Low	Medium	High
AGW	BHV	Bury Haverhill	120,456	248	310	371	230	314	636	116	308	501
AGW	BRN	Bourne	159,090	178	222	267	205	717	717	52	133	215
AGW	CEX	Central Essex	36,263	18	22	26	12	15	15	13	33	53
AGW	CLN	Central Lincolnshire	379,658	759	949	1,139	731	1,413	2,194	204	563	921
AGW	CVY	Cheveley	5,452	22	28	34	3	6	6	2	6	9
AGW	ELN	East Lincolnshire	394,683	432	540	648	562	1,101	1,326	681	1,380	2,080
AGW	ELY	Ely	92,363	341	426	511	184	281	378	37	101	164
AGW	ESU	East Suffolk	339,084	1,443	1,803	2,164	657	958	1,592	296	650	1,004
AGW	HPB	Happisburgh	16,975	5	6	7	13	19	21	82	151	220
AGW	IXW	Ixworth	24,782	11	14	17	10	14	26	28	75	121
AGW	NFN	North Fenland	89,830	226	283	339	152	281	324	414	852	1,290
AGW	NNC	North Norfolk Coast	90,762	59	74	88	41	57	65	433	800	1,166
AGW	NNR	North Norfolk Rural	121,588	104	130	155	117	164	196	82	193	305
AGW	NTB	Norwich and the Broads	349,100	2,174	2,717	3,261	1,298	1,808	2,773	191	458	725
AGW	NTM	Nottinghamshire	76,579	41	51	61	18	41	48	51	134	217
AGW	NWM	Newmarket	46,698	333	417	500	179	232	513	17	45	73
AGW	RTC	Ruthamford Central	312,901	3,056	3,821	4,585	733	1,256	2,307	115	333	551
AGW	RTN	Ruthamford North	968,664	5,032	6,290	7,548	1,509	4,664	4,700	333	918	1,503
AGW	RTS	Ruthamford South	480,174	2,110	2,637	3,165	1,089	1,637	3,250	198	565	932
AGW	RTW	Ruthamford West	87,397	353	442	530	69	137	280	55	142	228
AGW	SEX	South Essex	265,316	1,395	1,744	2,093	770	1,286	2,475	188	509	830
AGW	SFN	South Fenland	104,612	145	182	218	166	340	357	91	194	297
AGW	SLN	South Lincolnshire	112,894	120	150	180	213	252	285	88	245	401
AGW	SNR	South Norfolk Rural	46,608	38	47	57	25	39	49	25	60	96
AGW	SUD	Sudbury	32,667	38	47	57	24	31	45	20	43	66
AGW	THT	Thetford	37,903	100	125	150	174	236	344	17	42	67
AW	WRZ8	Brett	156,528	303	378	454	108	215	342	192	388	583
CW	CAM	Cambridge	331,627	5,676	7,095	8,514	3,687	5,434	7,199	260	746	1,232
ESW	1	Hartismere	25,445	4	5	6	6	8	12	43	106	169
ESW	2	Blyth	34,149	52	65	78	45	68	119	208	414	621
ESW	3	Northern & Central	212,891	328	410	492	134	351	359	320	614	908
ESW	4	Essex	1,677,223	27,221	34,026	40,831	3,022	5,202	7,178	384	1,048	1,713
		Total	**7,230,359**	**52,363**	**65,453**	**78,544**	**16,187**	**28,577**	**40,128**	**5,234**	**12,248**	**19,261**

Domestic Day Visitors

Table 2: Domestic Day Visitor population estimates

Water Co.	WRZ ID	Water Resource Zone	4a. Domestic Day Visitors								
			VFR			Other			Total		
			Low	Medium	High	Low	Medium	High	Low	Medium	High
AGW	BHV	Bury Haverhill	76	493	1,215	233	1,513	3,725	309	2,007	4,940
AGW	BRN	Bourne	72	468	1,152	198	1,288	3,170	270	1,756	4,321
AGW	CEX	Central Essex	17	112	275	53	348	855	71	459	1,131
AGW	CLN	Central Lincolnshire	145	945	2,327	408	2,654	6,533	554	3,599	8,860
AGW	CVY	Cheveley	4	23	58	11	70	173	14	94	231
AGW	ELN	East Lincolnshire	284	1,846	4,545	824	5,353	13,177	1,108	7,200	17,722
AGW	ELY	Ely	54	351	863	155	1,004	2,472	208	1,355	3,336
AGW	ESU	East Suffolk	202	1,316	3,240	598	3,889	9,573	801	5,205	12,812
AGW	HPB	Happisburgh	20	131	322	49	318	783	69	449	1,105
AGW	IXW	Ixworth	13	87	215	29	187	462	42	275	677
AGW	NFN	North Fenland	42	273	671	159	1,032	2,541	201	1,305	3,212
AGW	NNC	North Norfolk Coast	110	714	1,757	365	2,370	5,833	474	3,084	7,590
AGW	NNR	North Norfolk Rural	60	392	964	184	1,196	2,945	244	1,588	3,909
AGW	NTB	Norwich and the Broads	308	2,003	4,931	887	5,766	14,194	1,195	7,770	19,125
AGW	NTM	Nottinghamshire	41	266	654	138	897	2,208	179	1,163	2,862
AGW	NWM	Newmarket	25	163	401	90	583	1,434	115	746	1,835
AGW	RTC	Ruthamford Central	175	1,139	2,804	442	2,870	7,064	617	4,009	9,868
AGW	RTN	Ruthamford North	370	2,404	5,917	1,053	6,847	16,854	1,423	9,251	22,771
AGW	RTS	Ruthamford South	151	981	2,414	456	2,962	7,290	606	3,942	9,704
AGW	RTW	Ruthamford West	41	270	664	127	824	2,027	168	1,093	2,691
AGW	SEX	South Essex	172	1,121	2,759	518	3,365	8,284	690	4,486	11,043
AGW	SFN	South Fenland	41	265	653	97	633	1,558	138	898	2,211
AGW	SLN	South Lincolnshire	42	271	666	119	770	1,896	160	1,041	2,563
AGW	SNR	South Norfolk Rural	18	116	286	76	495	1,218	94	611	1,504
AGW	SUD	Sudbury	17	108	266	57	370	912	74	479	1,178
AGW	THT	Thetford	17	112	277	48	310	762	65	422	1,039
AW	WRZ8	Brett	99	646	1,590	305	1,979	4,872	404	2,625	6,462
CW	CAM	Cambridge	189	1,226	3,019	575	3,735	9,193	763	4,961	12,211
ESW	1	Hartismere	11	73	180	33	211	520	44	284	700
ESW	2	Blyth	24	155	382	93	608	1,495	117	763	1,877
ESW	3	Northern & Central	152	986	2,427	462	3,004	7,395	614	3,990	9,822
ESW	4	Essex	651	4,231	10,414	2,106	13,687	33,691	2,757	17,918	44,105
		Total	**3,644**	**23,687**	**58,305**	**10,944**	**71,139**	**175,111**	**14,589**	**94,825**	**233,416**

Domestic Night Visitors

Table 3: Domestic Night Visitor population estimates

Water Co.	WRZ ID	Water Resource Zone	4b. Domestic Night Visitors											
			VFR			Holiday			Business			Total		
			Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
AGW	BHV	Bury Haverhill	63	315	630	69	344	687	25	124	249	157	783	1,566
AGW	BRN	Bourne	64	321	643	45	226	451	14	68	135	123	615	1,230
AGW	CEX	Central Essex	12	62	124	3	14	27	2	10	20	17	86	171
AGW	CLN	Central Lincolnshire	195	976	1,951	126	628	1,256	35	175	349	356	1,778	3,557
AGW	CVY	Cheveley	2	8	15	1	6	13	0	2	4	3	16	32
AGW	ELN	East Lincolnshire	287	1,436	2,871	1,317	6,586	13,172	54	271	542	1,659	8,293	16,585
AGW	ELY	Ely	29	146	291	48	241	482	5	27	53	83	413	827
AGW	ESU	East Suffolk	213	1,063	2,125	198	989	1,977	69	347	695	480	2,399	4,797
AGW	HPB	Happisburgh	12	59	118	91	456	911	1	4	9	104	519	1,038
AGW	IXW	Ixworth	10	51	102	9	46	92	2	11	22	22	108	215
AGW	NFN	North Fenland	57	286	572	283	1,414	2,828	14	69	138	354	1,768	3,537
AGW	NNC	North Norfolk Coast	64	321	642	606	3,032	6,063	1	7	13	672	3,359	6,719
AGW	NNR	North Norfolk Rural	70	350	701	91	453	906	5	25	49	166	828	1,657
AGW	NTB	Norwich and the Broads	343	1,713	3,427	430	2,148	4,296	66	331	663	839	4,193	8,386
AGW	NTM	Nottinghamshire	18	91	183	17	86	172	5	26	51	41	203	407
AGW	NWM	Newmarket	18	92	184	85	423	845	3	13	26	105	527	1,055
AGW	RTC	Ruthamford Central	141	705	1,411	67	336	673	92	459	919	300	1,501	3,002
AGW	RTN	Ruthamford North	436	2,178	4,356	226	1,132	2,264	116	578	1,156	778	3,888	7,776
AGW	RTS	Ruthamford South	242	1,209	2,419	180	900	1,799	55	273	545	476	2,382	4,763
AGW	RTW	Ruthamford West	34	170	339	48	240	480	4	18	36	85	427	855
AGW	SEX	South Essex	137	684	1,369	67	336	672	31	156	313	235	1,177	2,354
AGW	SFN	South Fenland	49	245	491	90	448	895	13	65	130	152	758	1,516
AGW	SLN	South Lincolnshire	55	277	554	54	269	538	14	68	135	123	614	1,227
AGW	SNR	South Norfolk Rural	17	87	174	35	177	353	1	4	8	53	267	535
AGW	SUD	Sudbury	30	148	296	15	74	147	5	23	46	49	244	489
AGW	THT	Thetford	20	102	203	30	152	303	1	7	14	52	260	521
AW	WRZ8	Brett	78	389	778	152	758	1,515	20	98	196	249	1,245	2,489
CW	CAM	Cambridge	244	1,219	2,439	148	742	1,485	62	312	625	455	2,274	4,548
ESW	1	Hartismere	8	42	84	12	60	120	0	0	0	20	102	204
ESW	2	Blyth	20	101	202	71	356	712	9	47	93	101	504	1,008
ESW	3	Northern & Central	109	546	1,091	843	4,214	8,429	48	238	476	1,000	4,998	9,996
ESW	4	Essex	550	2,748	5,496	154	771	1,542	91	454	907	795	3,973	7,945
		Total	**3,628**	**18,141**	**36,281**	**5,611**	**28,055**	**56,109**	**862**	**4,308**	**8,616**	**10,101**	**50,503**	**101,006**

Foreign Night Visitors

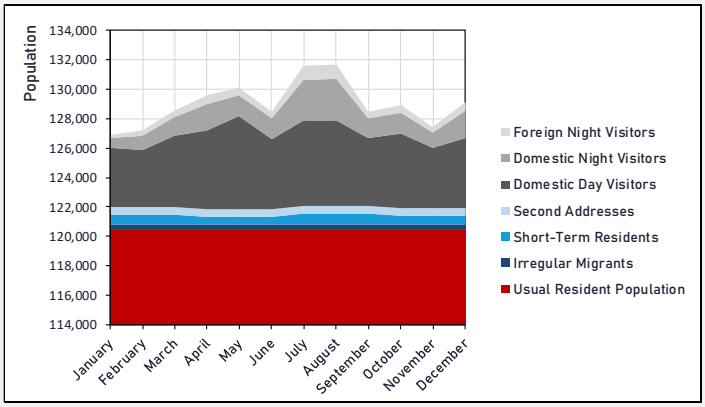
Table 4: Foreign Night Visitor population estimates

Water Co.	WRZ ID	Water Resource Zone	4c. Foreign Night Visitors											
			VFR			Holiday			Business			Total		
			Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
AGW	BHV	Bury Haverhill	111	222	370	30	61	102	20	40	66	161	323	538
AGW	BRN	Bourne	91	181	302	38	76	127	15	31	51	144	288	480
AGW	CEX	Central Essex	27	55	91	6	13	21	5	10	17	39	77	129
AGW	CLN	Central Lincolnshire	260	521	868	83	166	277	59	118	196	402	805	1,341
AGW	CVY	Cheveley	3	6	10	2	3	5	1	2	4	6	11	19
AGW	ELN	East Lincolnshire	420	840	1,399	126	252	421	101	203	338	647	1,295	2,158
AGW	ELY	Ely	69	138	230	25	51	85	17	34	57	111	223	371
AGW	ESU	East Suffolk	320	641	1,068	85	169	282	55	111	184	460	921	1,535
AGW	HPB	Happisburgh	20	41	68	4	8	13	2	4	6	26	52	87
AGW	IXW	Ixworth	20	39	65	4	8	13	2	5	8	26	52	86
AGW	NFN	North Fenland	62	123	206	19	38	64	9	17	28	89	179	298
AGW	NNC	North Norfolk Coast	101	202	336	28	55	92	12	24	41	141	281	469
AGW	NNR	North Norfolk Rural	40	80	133	10	20	34	4	9	15	54	109	181
AGW	NTB	Norwich and the Broads	341	682	1,136	80	161	268	36	71	119	457	914	1,523
AGW	NTM	Nottinghamshire	56	112	187	15	29	49	15	29	49	85	171	285
AGW	NWM	Newmarket	50	99	166	20	40	67	13	26	44	83	166	276
AGW	RTC	Ruthamford Central	691	1,383	2,305	130	260	433	158	316	526	979	1,958	3,264
AGW	RTN	Ruthamford North	1,043	2,086	3,477	381	763	1,271	364	727	1,212	1,788	3,576	5,960
AGW	RTS	Ruthamford South	490	981	1,634	239	479	798	134	267	446	863	1,727	2,878
AGW	RTW	Ruthamford West	95	189	315	26	53	88	34	67	112	154	309	515
AGW	SEX	South Essex	214	427	712	48	96	160	37	75	125	299	598	997
AGW	SFN	South Fenland	53	106	177	14	29	48	8	17	28	76	152	253
AGW	SLN	South Lincolnshire	89	178	296	40	81	135	16	31	52	145	290	483
AGW	SNR	South Norfolk Rural	21	41	68	7	15	25	3	7	11	31	62	104
AGW	SUD	Sudbury	42	83	138	13	26	43	8	17	28	63	126	209
AGW	THT	Thetford	20	40	66	4	8	14	2	5	8	26	52	87
AW	WRZ8	Brett	153	306	509	35	70	117	27	54	91	215	430	717
CW	CAM	Cambridge	822	1,644	2,740	434	868	1,446	292	584	974	1,548	3,096	5,160
ESW	1	Hartismere	18	36	60	5	9	16	3	6	10	26	52	86
ESW	2	Blyth	44	88	147	16	31	52	10	20	34	70	140	233
ESW	3	Northern & Central	222	444	740	58	116	194	32	63	106	312	623	1,039
ESW	4	Essex	970	1,941	3,234	552	1,104	1,840	237	474	790	1,759	3,519	5,865
		Total	**6,976**	**13,952**	**23,254**	**2,579**	**5,158**	**8,597**	**1,732**	**3,464**	**5,773**	**11,287**	**22,574**	**37,624**

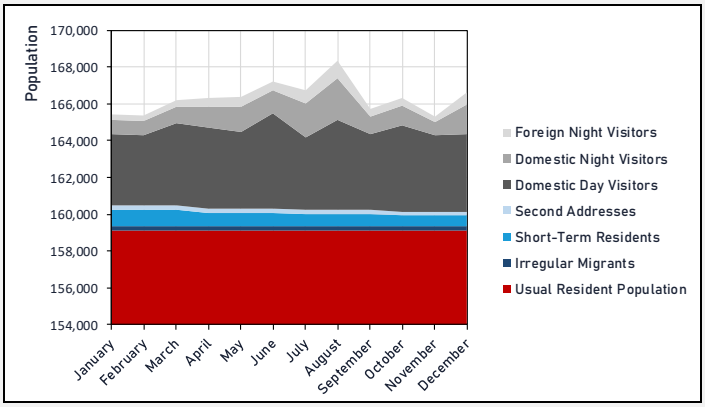
Appendix A
WRZ Seasonality Profiles

Note: Visitor totals may differ from those presented in the main tables due to rounding errors resulting from the seasonality calculations.

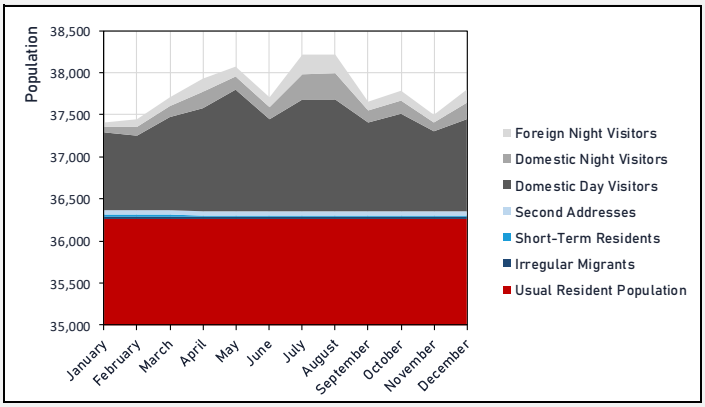
Anglian Water Bury Haverhill - BHV	Seasonal Average	Seasonal Maximum
Usual Resident Population	120,456	120,456
Irregular Migrants	371	371
Short-Term Residents	636	750
Second Addresses	501	501
Domestic Day Visitors	4,940	6,326
Domestic Night Visitors	1,566	2,845
Foreign Night Visitors	538	977
Total	**129,007**	**132,225**
Maximum uplift:	10%	



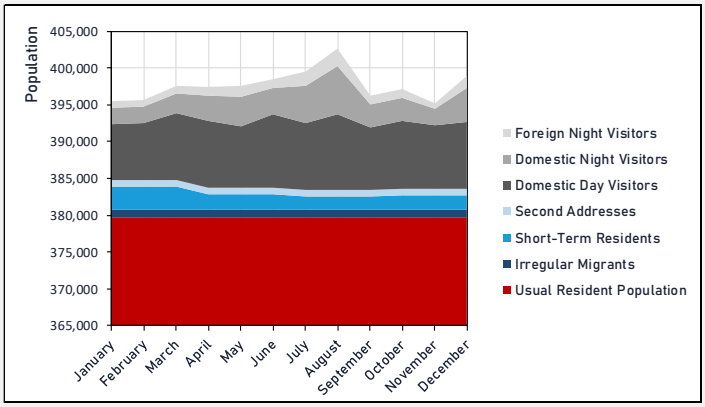
Anglian Water Bourne - BRN	Seasonal Average	Seasonal Maximum
Usual Resident Population	159,090	159,090
Irregular Migrants	267	267
Short-Term Residents	717	912
Second Addresses	215	215
Domestic Day Visitors	4,321	5,192
Domestic Night Visitors	1,230	2,318
Foreign Night Visitors	480	904
Total	**166,319**	**168,897**
Maximum uplift:	6%	



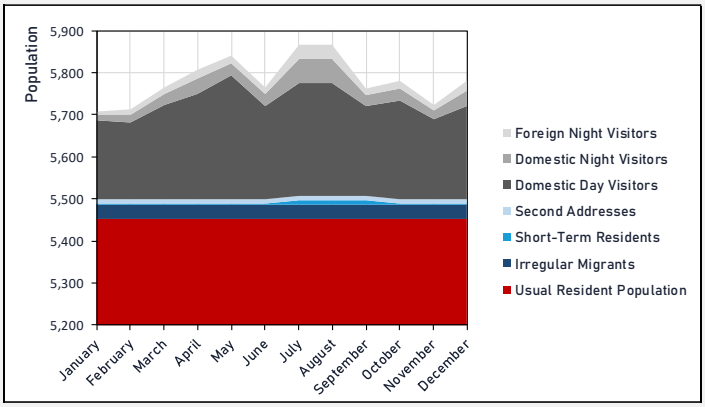
Anglian Water Central Essex - CEX	Seasonal Average	Seasonal Maximum
Usual Resident Population	36,263	36,263
Irregular Migrants	26	26
Short-Term Residents	15	20
Second Addresses	53	53
Domestic Day Visitors	1,131	1,448
Domestic Night Visitors	171	311
Foreign Night Visitors	129	234
Total	**37,788**	**38,355**
Maximum uplift:	6%	



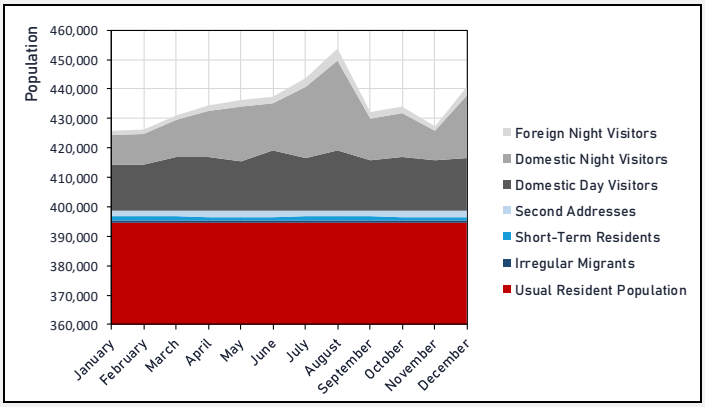
Anglian Water Central Lincolnshire - CLN	Seasonal Average	Seasonal Maximum
Usual Resident Population	379,658	379,658
Irregular Migrants	1,139	1,139
Short-Term Residents	2,194	3,095
Second Addresses	921	921
Domestic Day Visitors	8,860	10,169
Domestic Night Visitors	3,557	6,567
Foreign Night Visitors	1,341	2,445
Total	**397,670**	**403,995**
	Maximum uplift:	6%



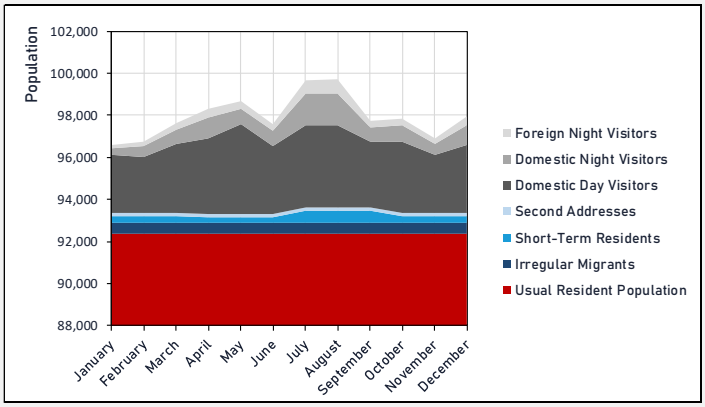
Anglian Water Cheveley - CVY	Seasonal Average	Seasonal Maximum
Usual Resident Population	5,452	5,452
Irregular Migrants	34	34
Short-Term Residents	6	12
Second Addresses	9	9
Domestic Day Visitors	231	295
Domestic Night Visitors	32	58
Foreign Night Visitors	19	34
Total	**5,782**	**5,893**
	Maximum uplift:	8%



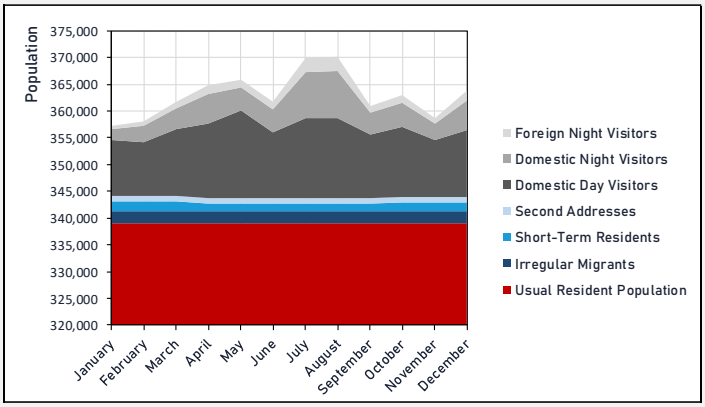
Anglian Water East Lincolnshire - ELN	Seasonal Average	Seasonal Maximum
Usual Resident Population	394,683	394,683
Irregular Migrants	648	648
Short-Term Residents	1,326	1,414
Second Addresses	2,080	2,080
Domestic Day Visitors	17,722	20,320
Domestic Night Visitors	16,585	30,732
Foreign Night Visitors	2,158	3,901
Total	**435,203**	**453,778**
	Maximum uplift:	15%



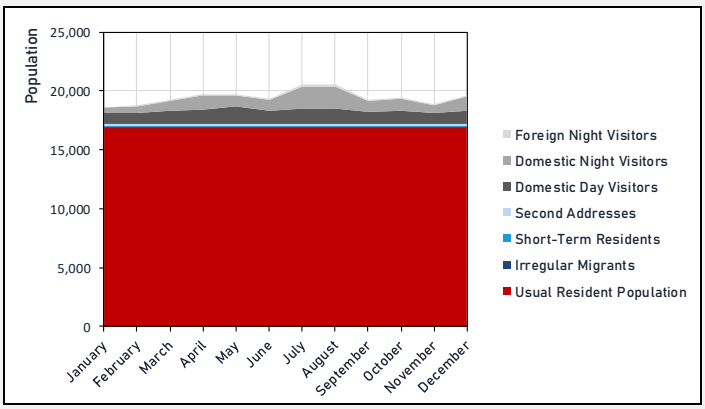
Anglian Water Ely - ELY	Seasonal Average	Seasonal Maximum
Usual Resident Population	92,363	92,363
Irregular Migrants	511	511
Short-Term Residents	378	594
Second Addresses	164	164
Domestic Day Visitors	3,336	4,272
Domestic Night Visitors	827	1,502
Foreign Night Visitors	371	675
Total	**97,950**	**100,081**
Maximum uplift:		8%



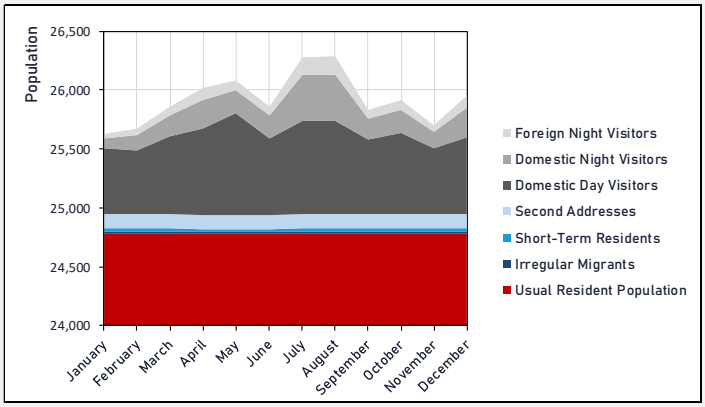
Anglian Water East Suffolk - ESU	Seasonal Average	Seasonal Maximum
Usual Resident Population	339,084	339,084
Irregular Migrants	2,164	2,164
Short-Term Residents	1,592	1,790
Second Addresses	1,004	1,004
Domestic Day Visitors	12,812	16,409
Domestic Night Visitors	4,797	8,714
Foreign Night Visitors	1,535	2,788
Total	**362,988**	**371,953**
Maximum uplift:		10%



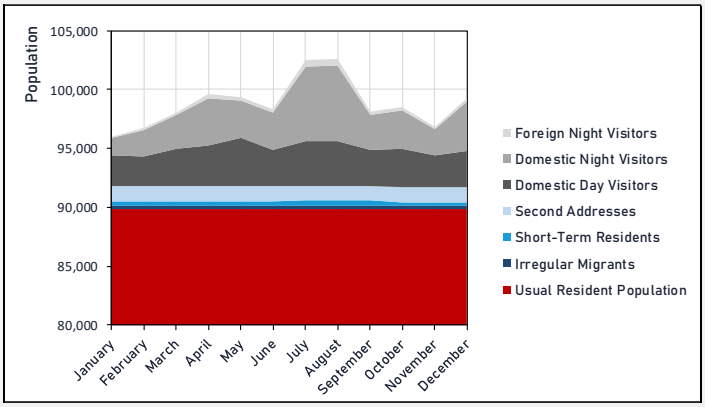
Anglian Water Happisburgh - HPB	Seasonal Average	Seasonal Maximum
Usual Resident Population	16,975	16,975
Irregular Migrants	7	7
Short-Term Residents	21	29
Second Addresses	220	220
Domestic Day Visitors	1,105	1,415
Domestic Night Visitors	1,038	1,886
Foreign Night Visitors	87	159
Total	**19,453**	**20,691**
Maximum uplift:		22%



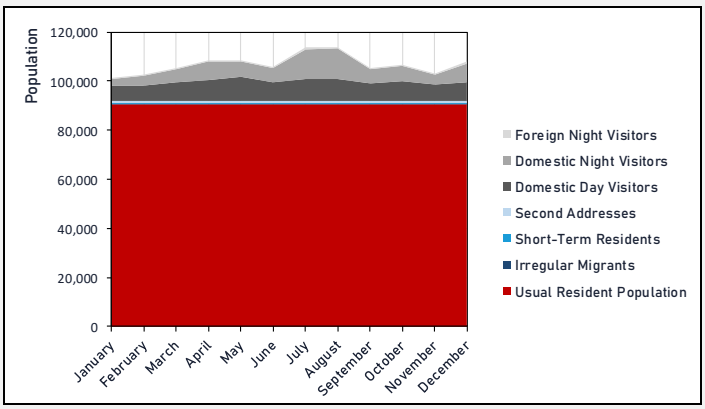
Anglian Water Ixworth - IXW	Seasonal Average	Seasonal Maximum
Usual Resident Population	24,782	24,782
Irregular Migrants	17	17
Short-Term Residents	26	29
Second Addresses	121	121
Domestic Day Visitors	677	867
Domestic Night Visitors	215	391
Foreign Night Visitors	86	156
Total	**25,924**	**26,363**
Maximum uplift:		6%



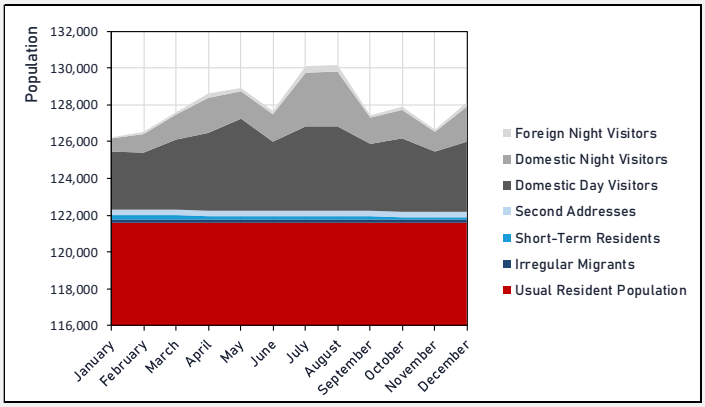
Anglian Water North Fenland - NFN	Seasonal Average	Seasonal Maximum
Usual Resident Population	89,830	89,830
Irregular Migrants	339	339
Short-Term Residents	324	391
Second Addresses	1,290	1,290
Domestic Day Visitors	3,212	4,114
Domestic Night Visitors	3,537	6,425
Foreign Night Visitors	298	542
Total	**98,830**	**102,930**
Maximum uplift:		15%



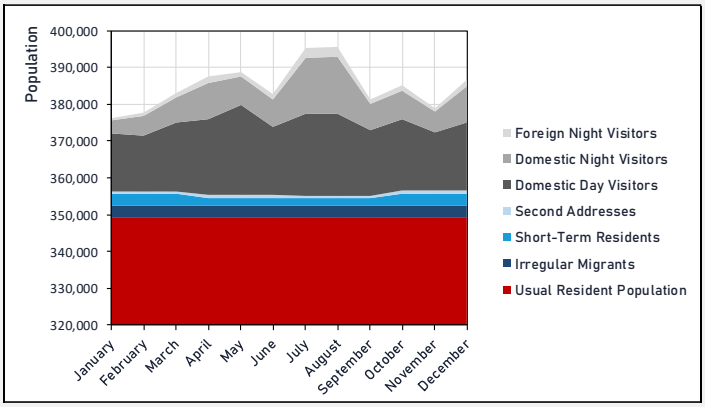
Anglian Water North Norfolk Coast - NNC	Seasonal Average	Seasonal Maximum
Usual Resident Population	90,762	90,762
Irregular Migrants	88	88
Short-Term Residents	65	86
Second Addresses	1,166	1,166
Domestic Day Visitors	7,590	9,721
Domestic Night Visitors	6,719	12,205
Foreign Night Visitors	469	852
Total	**106,860**	**114,881**
Maximum uplift:		27%



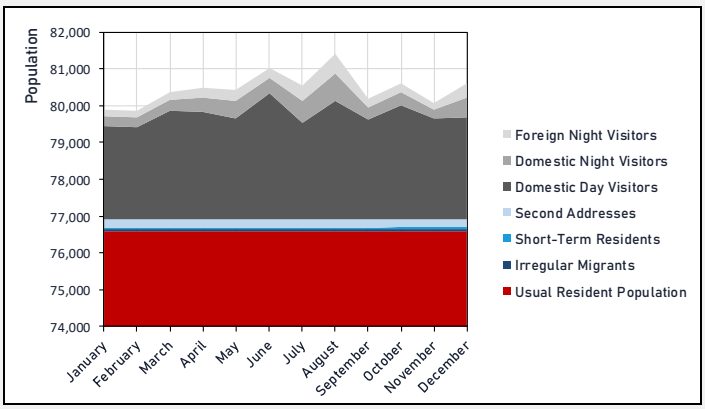
Anglian Water North Norfolk Rural - NNR	Seasonal Average	Seasonal Maximum
Usual Resident Population	121,588	121,588
Irregular Migrants	155	155
Short-Term Residents	196	237
Second Addresses	305	305
Domestic Day Visitors	3,909	5,006
Domestic Night Visitors	1,657	3,009
Foreign Night Visitors	181	329
Total	**127,991**	**130,630**
Maximum uplift:		7%



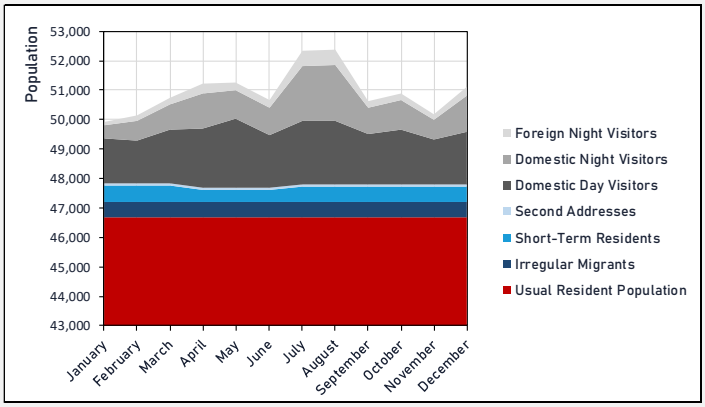
Anglian Water Norwich and the Broads - NTB	Seasonal Average	Seasonal Maximum
Usual Resident Population	349,100	349,100
Irregular Migrants	3,261	3,261
Short-Term Residents	2,773	3,480
Second Addresses	725	725
Domestic Day Visitors	19,125	24,494
Domestic Night Visitors	8,386	15,234
Foreign Night Visitors	1,523	2,766
Total	**384,893**	**399,060**
Maximum uplift:		14%



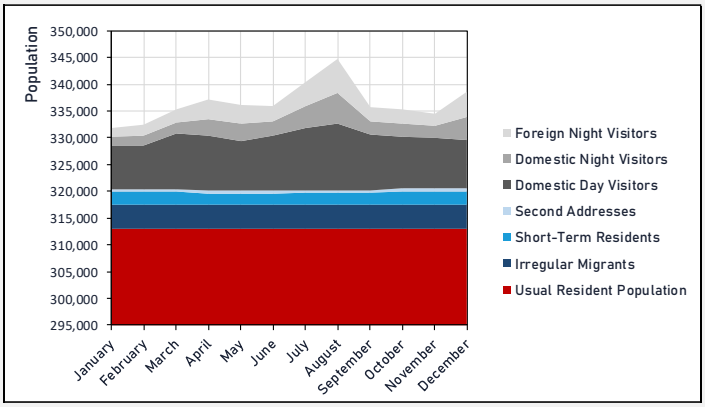
Anglian Water Nottinghamshire - NTM	Seasonal Average	Seasonal Maximum
Usual Resident Population	76,579	76,579
Irregular Migrants	61	61
Short-Term Residents	48	54
Second Addresses	217	217
Domestic Day Visitors	2,862	3,432
Domestic Night Visitors	407	764
Foreign Night Visitors	285	535
Total	**80,458**	**81,642**
Maximum uplift:		7%



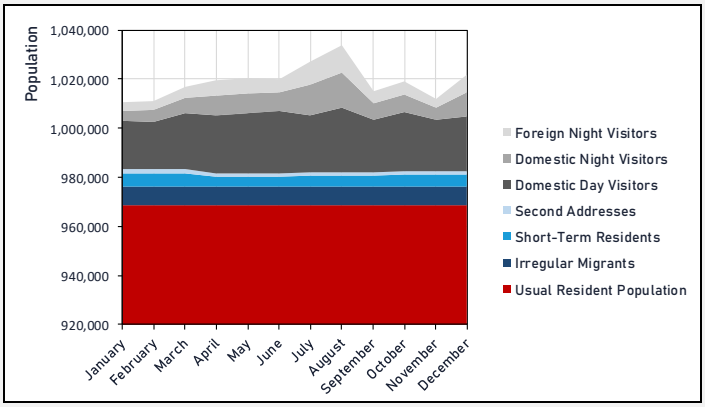
Anglian Water Newmarket - NWM	Seasonal Average	Seasonal Maximum
Usual Resident Population	46,698	46,698
Irregular Migrants	500	500
Short-Term Residents	513	579
Second Addresses	73	73
Domestic Day Visitors	1,835	2,350
Domestic Night Visitors	1,055	1,916
Foreign Night Visitors	276	502
Total	**50,950**	**52,617**
	Maximum uplift:	13%



Anglian Water Ruthamford Central - RTC	Seasonal Average	Seasonal Maximum
Usual Resident Population	312,901	312,901
Irregular Migrants	4,585	4,585
Short-Term Residents	2,307	2,561
Second Addresses	551	551
Domestic Day Visitors	9,868	12,436
Domestic Night Visitors	3,002	5,739
Foreign Night Visitors	3,264	6,240
Total	**336,478**	**345,013**
	Maximum uplift:	10%

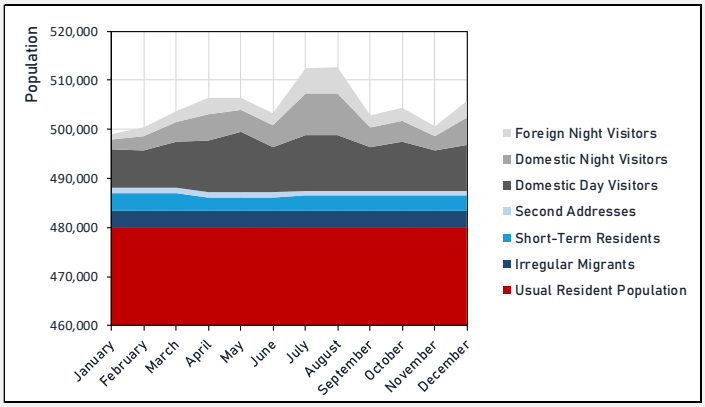


Anglian Water Ruthamford North - RTN	Seasonal Average	Seasonal Maximum
Usual Resident Population	968,664	968,664
Irregular Migrants	7,548	7,548
Short-Term Residents	4,700	5,546
Second Addresses	1,503	1,503
Domestic Day Visitors	22,771	25,983
Domestic Night Visitors	7,776	14,436
Foreign Night Visitors	5,960	11,062
Total	**1,018,921**	**1,034,742**
	Maximum uplift:	7%



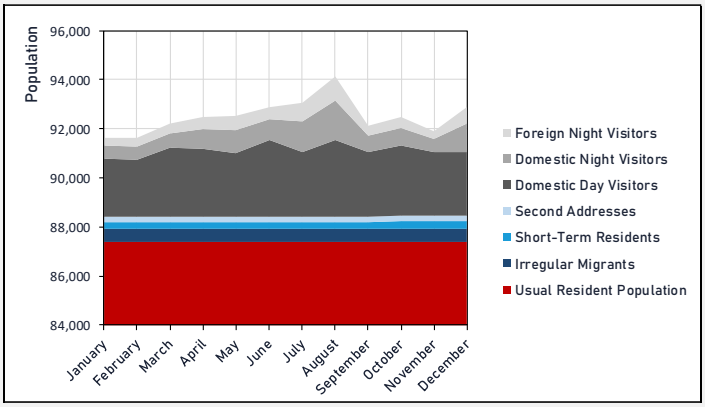
Anglian Water
Ruthamford South - RTS

	Seasonal Average	Seasonal Maximum
Usual Resident Population	480,174	480,174
Irregular Migrants	3,165	3,165
Short-Term Residents	3,250	3,767
Second Addresses	932	932
Domestic Day Visitors	9,704	12,427
Domestic Night Visitors	4,763	8,653
Foreign Night Visitors	2,878	5,228
Total	**504,865**	**514,345**
Maximum uplift:		7%



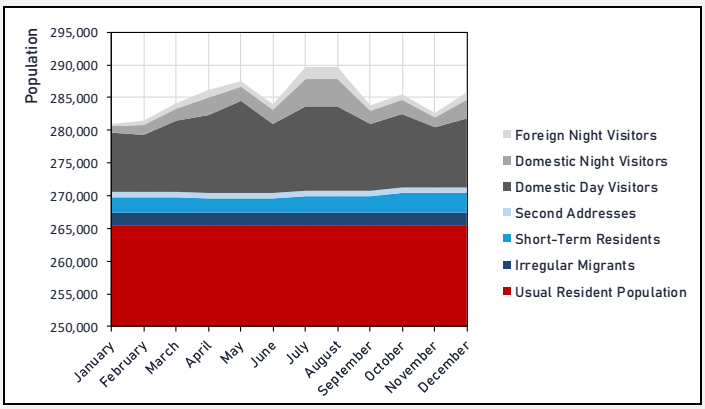
Anglian Water
Ruthamford West - RTW

	Seasonal Average	Seasonal Maximum
Usual Resident Population	87,397	87,397
Irregular Migrants	530	530
Short-Term Residents	280	320
Second Addresses	228	228
Domestic Day Visitors	2,691	3,132
Domestic Night Visitors	855	1,617
Foreign Night Visitors	515	973
Total	**92,496**	**94,197**
Maximum uplift:		8%

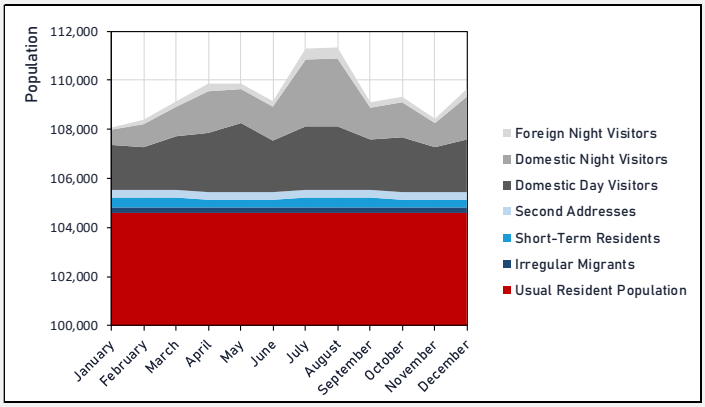


Anglian Water
South Essex - SEX

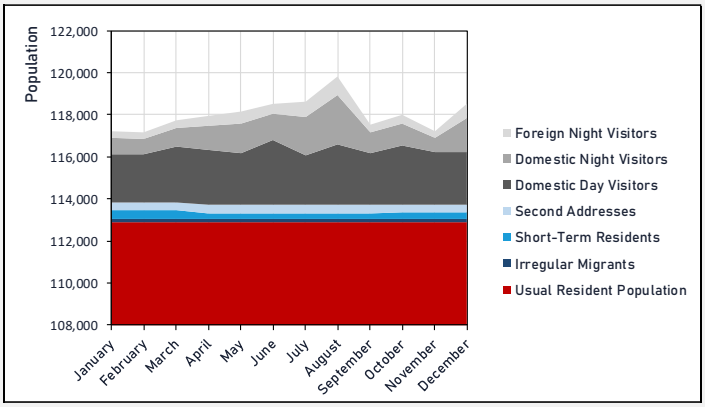
	Seasonal Average	Seasonal Maximum
Usual Resident Population	265,316	265,316
Irregular Migrants	2,093	2,093
Short-Term Residents	2,475	2,976
Second Addresses	830	830
Domestic Day Visitors	11,043	14,142
Domestic Night Visitors	2,354	4,275
Foreign Night Visitors	997	1,810
Total	**285,107**	**291,443**
Maximum uplift:		10%



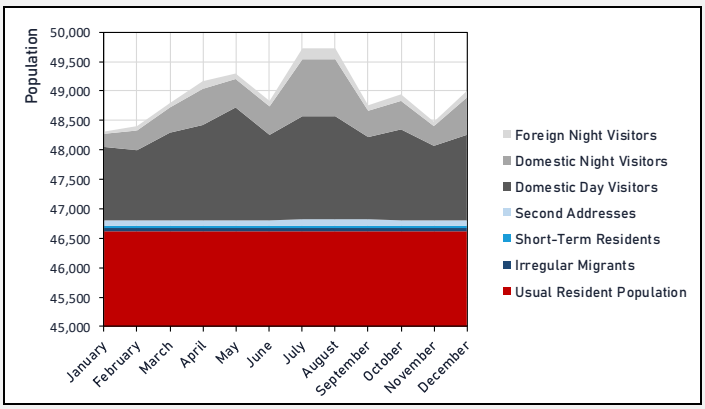
Anglian Water South Fenland - SFN	Seasonal Average	Seasonal Maximum
Usual Resident Population	104,612	104,612
Irregular Migrants	218	218
Short-Term Residents	357	407
Second Addresses	297	297
Domestic Day Visitors	2,211	2,830
Domestic Night Visitors	1,516	2,754
Foreign Night Visitors	253	460
Total	**109,463**	**111,579**
Maximum uplift:		7%



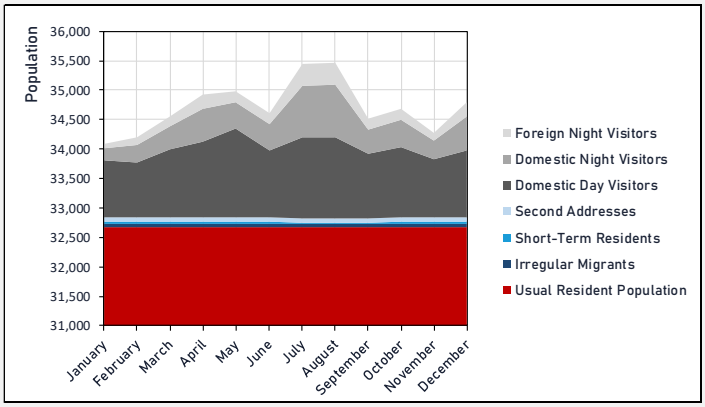
Anglian Water South Lincolnshire - SLN	Seasonal Average	Seasonal Maximum
Usual Resident Population	112,894	112,894
Irregular Migrants	180	180
Short-Term Residents	285	375
Second Addresses	401	401
Domestic Day Visitors	2,563	3,081
Domestic Night Visitors	1,227	2,314
Foreign Night Visitors	483	910
Total	**118,032**	**120,154**
Maximum uplift:		6%



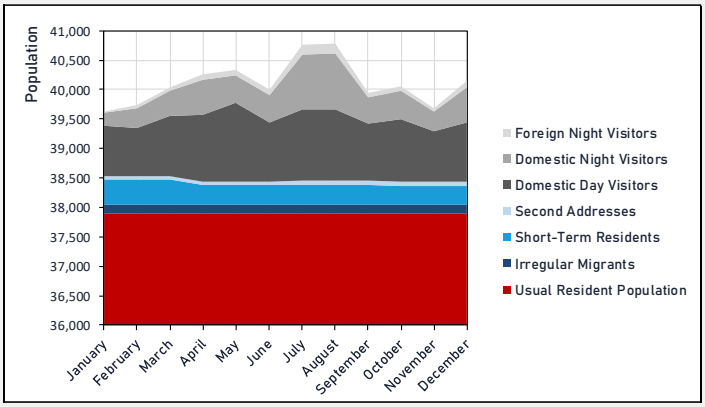
Anglian Water South Norfolk Rural - SNR	Seasonal Average	Seasonal Maximum
Usual Resident Population	46,608	46,608
Irregular Migrants	57	57
Short-Term Residents	49	54
Second Addresses	96	96
Domestic Day Visitors	1,504	1,926
Domestic Night Visitors	535	971
Foreign Night Visitors	104	189
Total	**48,951**	**49,900**
Maximum uplift:		7%



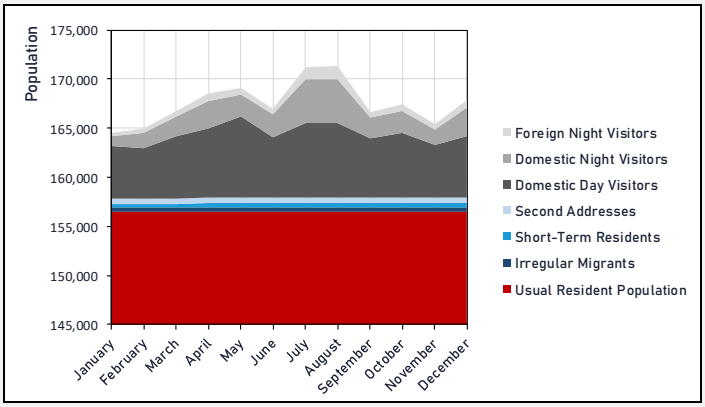
Anglian Water Sudbury - SUD	Seasonal Average	Seasonal Maximum
Usual Resident Population	32,667	32,667
Irregular Migrants	57	57
Short-Term Residents	45	51
Second Addresses	66	66
Domestic Day Visitors	1,178	1,508
Domestic Night Visitors	489	888
Foreign Night Visitors	209	380
Total	**34,710**	**35,617**
Maximum uplift:	9%	



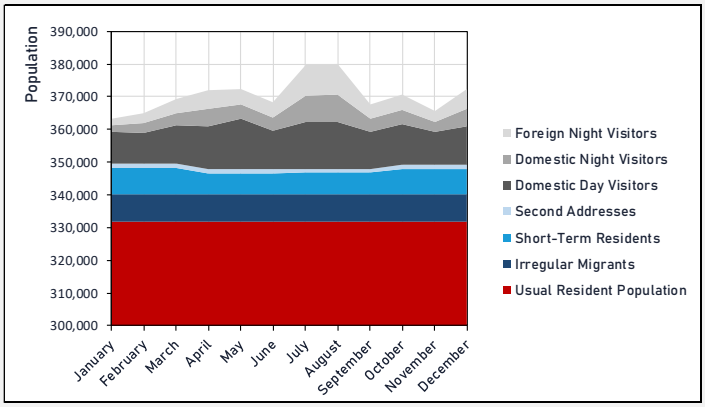
Anglian Water Thetford - THT	Seasonal Average	Seasonal Maximum
Usual Resident Population	37,903	37,903
Irregular Migrants	150	150
Short-Term Residents	344	411
Second Addresses	67	67
Domestic Day Visitors	1,039	1,331
Domestic Night Visitors	521	946
Foreign Night Visitors	87	159
Total	**40,112**	**40,966**
Maximum uplift:	8%	



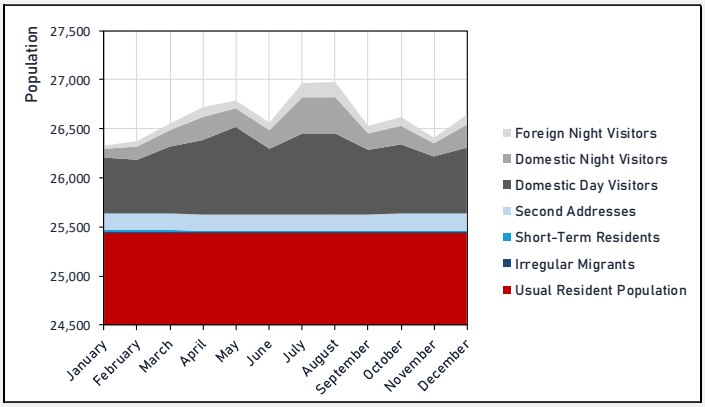
Affinity Water Brett - WRZ8	Seasonal Average	Seasonal Maximum
Usual Resident Population	156,528	156,528
Irregular Migrants	454	454
Short-Term Residents	342	377
Second Addresses	583	583
Domestic Day Visitors	6,462	8,276
Domestic Night Visitors	2,489	4,522
Foreign Night Visitors	717	1,302
Total	**167,575**	**172,042**
Maximum uplift:	10%	



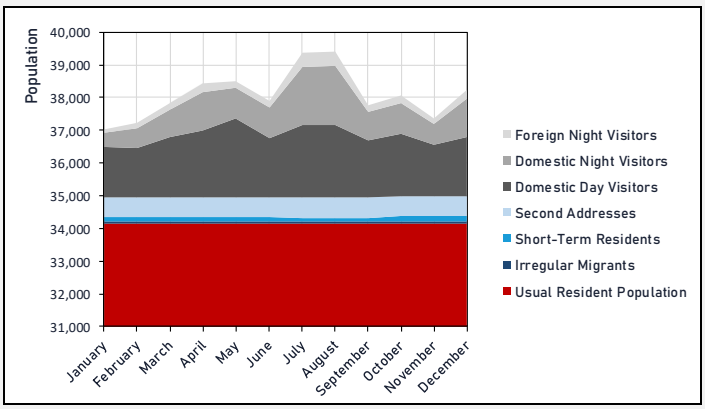
Cambridge Water Cambridge - CAM	Seasonal Average	Seasonal Maximum
Usual Resident Population	331,627	331,627
Irregular Migrants	8,514	8,514
Short-Term Residents	7,199	8,008
Second Addresses	1,232	1,232
Domestic Day Visitors	12,211	15,639
Domestic Night Visitors	4,548	8,262
Foreign Night Visitors	5,160	9,373
Total	**370,490**	**382,654**
Maximum uplift:		15%



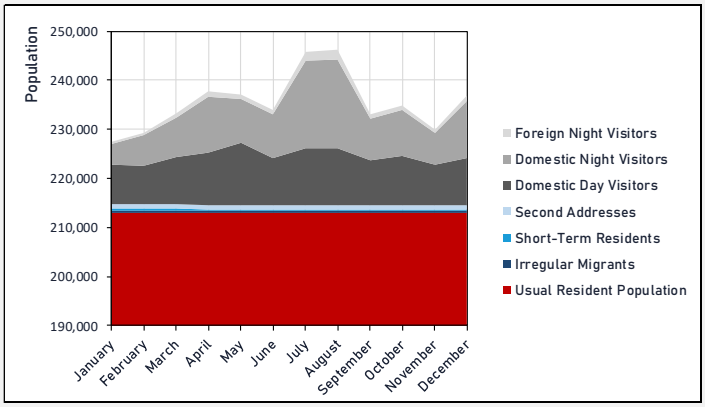
Essex and Suffolk Water Hartismere - 1	Seasonal Average	Seasonal Maximum
Usual Resident Population	25,445	25,445
Irregular Migrants	6	6
Short-Term Residents	12	16
Second Addresses	169	169
Domestic Day Visitors	700	897
Domestic Night Visitors	204	371
Foreign Night Visitors	86	156
Total	**26,622**	**27,060**
Maximum uplift:		6%



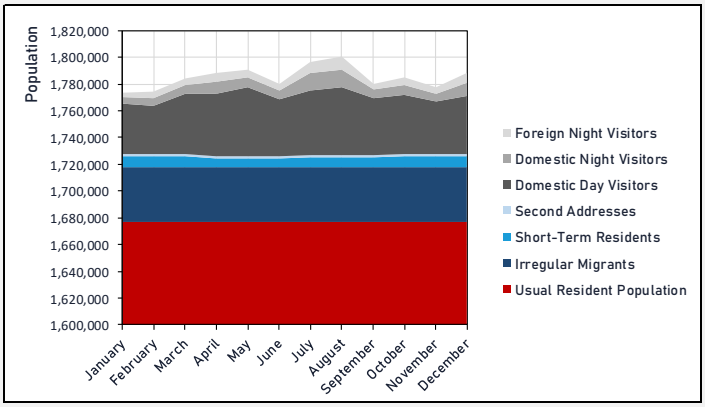
Essex and Suffolk Water Blyth - 2	Seasonal Average	Seasonal Maximum
Usual Resident Population	34,149	34,149
Irregular Migrants	78	78
Short-Term Residents	119	139
Second Addresses	621	621
Domestic Day Visitors	1,877	2,404
Domestic Night Visitors	1,008	1,831
Foreign Night Visitors	233	423
Total	**38,085**	**39,645**
Maximum uplift:		16%



Essex and Suffolk Water Northern & Central - 3	Seasonal Average	Seasonal Maximum
Usual Resident Population	212,891	212,891
Irregular Migrants	492	492
Short-Term Residents	359	463
Second Addresses	908	908
Domestic Day Visitors	9,822	12,580
Domestic Night Visitors	9,996	18,159
Foreign Night Visitors	1,039	1,888
Total	**235,508**	**247,381**
	Maximum uplift:	16%

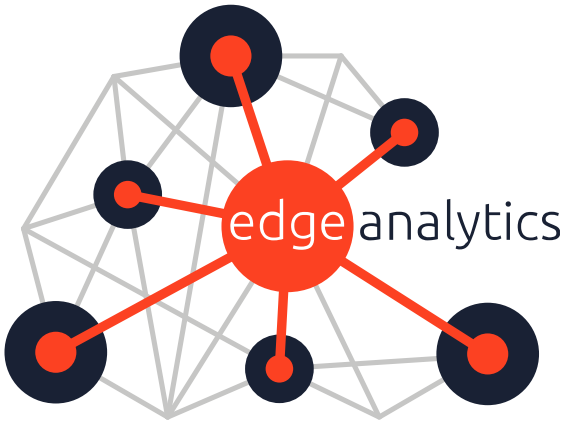


Essex and Suffolk Water Essex - 4	Seasonal Average	Seasonal Maximum
Usual Resident Population	1,677,223	1,677,223
Irregular Migrants	40,831	40,831
Short-Term Residents	7,178	7,820
Second Addresses	1,713	1,713
Domestic Day Visitors	44,105	51,529
Domestic Night Visitors	7,945	13,448
Foreign Night Visitors	5,865	9,413
Total	**1,784,859**	**1,801,976**
	Maximum uplift:	7%



Appendix B
Glossary of Terms

DWMP	Drainage and Wastewater Management Plan
DWP	Department for Works and Pensions
EFTA	European Free Trade Association
EU	European Union
GB	Great Britain
GBDVS	GB Day Visitor Survey
GBTS	GB Tourist Survey
HE	Higher education
HESA	Higher Education Statistics Authority
H&T	Hidden and transient
IPPR	Institute for Public Policy Research
IPS	International Passenger Survey
LSE	London School of Economics
NINo	National Insurance Number
Non-EU	Non-European Union
ONS	Office for National Statistics
PAF	Postcode Address File
STM	Short-term migrant
STR	Short-term resident
TDV	Tourism day visits
UK	United Kingdom
UN	United Nations
US	United States
VFR	Visiting friends and relatives
WRMP	Water Resources Management Plan
WRZ	Water Resource Zone



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