



8

**Preferred
Approach -
Regional**



8.1 Introduction

As outlined in Section 1.9.4 of the Framework Plan and Section 1.4 of this document, given the large number of WRZs per capita of population, the National Water Resources Plan (NWRP) has been subdivided into 22 Study Areas (SAs) across four Regions.

These subdivisions are necessary and appropriate to make the Option development and assessment tasks manageable for both Uisce Éireann and the public/stakeholders during the consultation phase. Notwithstanding the sub-division, solutions are not constrained by distance i.e., WRZ, Study Area or Regional boundaries, but instead by the criteria of Resilience, Sustainability, Flexibility and Deliverability.

One of the key benefits of having a Regional Plan is that it allows us to consider options to address Need for each individual supply, and then to further assess whether the outcomes of the Plan can be improved by reviewing larger Study Area (SA) Options which serve multiple WRZs at Study Area Level; or even larger Regional Options that can be applied across the region.

Study Area and Regional Options in some cases perform better than local solutions, as they:

- Allow us to look at the resilient supplies across a wider area
- Provide opportunities to decommission problematic, unsustainable local sources
- Allow us to balance our overall regional abstraction in an improved way across multiple catchments, with improvements in sustainability
- Improve operational control by having fewer Water Treatment Plants (WTPs) to manage
- Provide more resilient WRZs that are less sensitive to peaks in demand during critical events.

As part of Section 7, we reviewed the Preferred Approach at WRZ and Study Area Level. During that process we assessed the Feasible Options to determine whether any options were available to meet the Need across multiple WRZs (SA Options).

In this section we:

- Explain the limitations to the development of a large-scale regional interconnected supply for the North West Region; and
- Describe the Regional Preferred Approach, outlining the benefits of supply rationalisation and interconnectivity achieved through our proposed SA Options.

8.2 Limitations to the Development of a Regional Interconnected Supply for the North West Region

Unlike the Eastern and Midlands Regional Water Resources Plan (RWRP-EM), our Option Development Process for the North West Region did not identify any Feasible Options with the potential, in terms of quantity and distribution of supply, for a large-scale interconnection of multiple WRZs across the Study Area boundaries. The Study Area Preferred Approach does however comprise interconnected supplies within the Study Area boundaries and in this way provides the benefit of resilience and improved environmental outcomes through the decommissioning of unsustainable sources and ageing infrastructure. It also contains some small Cross Study Area Transfers, including one connection to the South Louth East Meath WRZ in the Eastern and Midlands Region of the NWRP.

The potential to provide regional interconnectivity (across Study Area boundaries) is limited due to a combination of terrain; potential impacts of construction on designated sites; the volume of water we can sustainably abstract from water sources; and the cost and challenge of transporting small volumes of water across long distances.

8.2.1 Topography and Designated Sites

Opportunities to merge WRZs across Study Area boundaries are limited by both topography and the potential impact of construction through European designated sites. Figure 8.1 displays the surface elevation across the region and the location of environmentally sensitive sites, including Natural Heritage Areas, Special Protection Areas and locations designated as a Special Areas of Conservation. The figure shows extensive protected areas and elevated terrain to the west of SAC and SAD, which include Connemara National Park and Moycullen bog in County Galway and Wild Nephin National Park in County Mayo. These would limit the opportunities to expand the Galway City and Lough Mask and Westport water supply schemes to coastal regions. Additionally, the Glenveagh National Park located in County Donegal, as the second largest in Ireland, would serve as a barrier to the further expansion of the sources serving Letterkenny. The Derryveagh Mountains also separate the coastal parts of the county from the major inland towns such as Letterkenny.

Part of the North West Region lies along the boundary between the Republic of Ireland and Northern Ireland. Our assessment considered potential effects on Special Protection Areas and Special Areas of Conservation sites in Northern Ireland. These sites are also shown in Figure 8.1.

Legend

- City
- Regional Centre
- Town
- Ramsar Site
- Nature Reserve
- ▭ Study area boundary
- ▭ Natural Heritage Area (NHA)
- ▭ Special Protection Area (SPA)
- ▭ Special Area of Conservation (SAC)
- ▭ Proposed Natural Heritage Area (pNHA)
- ▭ Northern Ireland

Surface elevation in meters

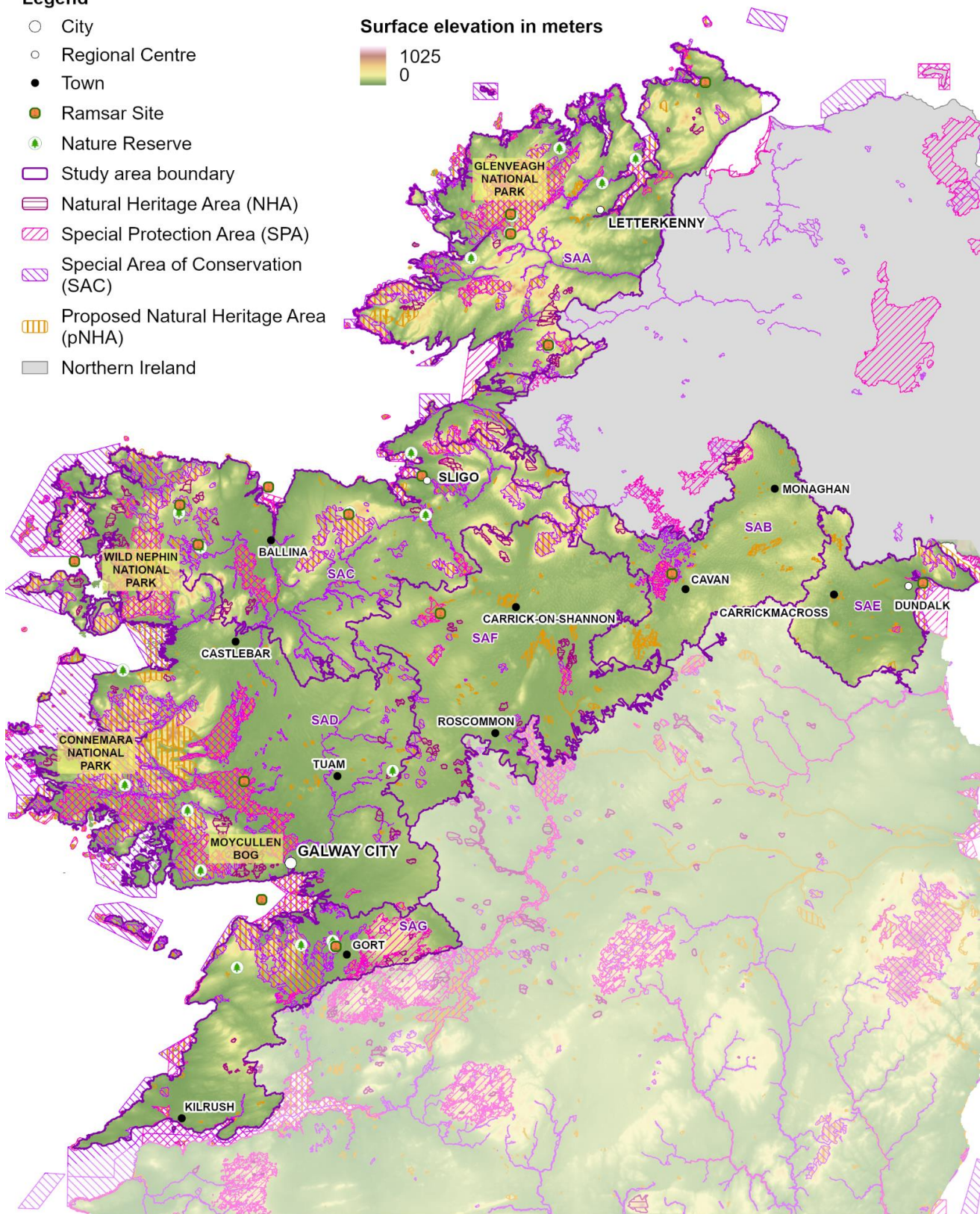
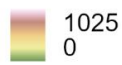


Figure 8.1 Designated sites in the North West Region

8.2.2 Sustainable Abstractions

Under the Water Framework Directive (WFD), Ireland must ensure that all waterbodies achieve 'Good' status by 2027. In addition, any modification to a WFD waterbody should not lead to a deterioration in either the overall status or any of the WFD water quality parameters¹.

As discussed in Section 2.3.7, in developing our Preferred Approach we have considered the potential impact of the pending Abstraction Legislation² on our Supply Demand Balance (SDB). We have used this information to identify opportunities to improve environmental outcomes through our Plan solutions, and to ensure new or increased abstractions remain below the theoretical sustainable abstraction limits.

The water abstraction standards used to assess the impact of new options are based on UKTAG guidance³ for achieving 'Good' or 'High' status, depending on current waterbody status. This limits the number of existing abstractions that can be sustainably developed to provide supply to additional areas.

The riverine ecology of just over 71% of the main river water bodies in the North West Region is considered highly sensitive to changes in flow and water level (see Section 2.3.3). Furthermore, 33% of the surface water bodies in the region are classified at below 'Good' ecological status. Sixteen (16%) are at 'Poor' or 'Bad' status (below 'Moderate') (see Section 2.3.5). When considering abstractions from 'Poor' status waterbodies, the proposed abstraction is limited to the volume that will support the achievement of 'Good' status.

8.2.3 Small and Isolated Settlements

Besides the topographical constraints and the potential impacts on designated sites and WFD status, the feasibility of interconnecting supplies across long distances depends on the volume of water that is transferred. Transferring water to small demand centres across long distances is not economically feasible nor efficient, due to the associated friction and loss of pressure head. Small, local water supply sources therefore remain the Preferred Approach for isolated, rural settlements.

Transferring small quantities of water over long distances can also result in water quality issues. Minimum main size requirements means that treated water may be stored in the network for extended periods of time and hence there can be a significant time lag between when the water was treated and when the customer receives the water. Additional chlorine dosing may be required along the network to ensure water received by our customers meets the required water standards. Such arrangements can be complicated and costly for small supplies.

8.3 The Regional Preferred Approach

Due to the limitations described in Section 8.2, our Option Development Process for the North West Region did not identify any feasible options with the potential, in terms of quantity and distribution of supply, for a large-scale interconnection of multiple WRZs across the Study Area boundaries. For this reason, the SA Preferred Approach that is presented in Section 7 is identified as the 'Best Value' solution to address the regional water supply Need. The Regional Preferred Approach is therefore defined as the combination of the seven (7) Study Area Preferred Approaches for the North West Region.

Although the Preferred Approach for the North West Region does not involve a large-scale regional interconnected supply, the Preferred Approach does comprise large, interconnected supplies within the Study Area boundaries and in this way provides the benefit of resilience, and improved environmental outcomes through the decommissioning of unsustainable sources. There are also five (5) small interconnections that cross study area boundaries, including one cross regional interconnection to the South Louth East Meath WRZ in the Eastern and Midlands Region.

The interconnection of existing supply systems creates 15 new, larger interconnected WRZs replacing 52 existing WRZs. This will reduce the total number of water supply systems that Uisce Éireann will operate and maintain across the region from 119 to 81. Two of the largest interconnected systems are proposed within County Donegal in SAA. This includes the development of Eddie Fullarton Pollan Dam, Glen Lough and Gartan Lough sources to supply Letterkenny and settlements on the Fanad Peninsula and Inishowen Peninsula; and a new surface water abstraction and WTP on the River Erne at Knader. The proposed new WTP at Knader, near Cathleen’s Falls, will interconnect eight (8) WRZs, including the rationalisation of four (4) WRZs. Table 8.1 shows the number of new WRZs formed by merging a specific number of existing WRZs. For example, it shows that five (5) new WRZs are formed by merging two (2) WRZs each, hence replacing ten (10) existing WRZs.

The Preferred Approach also comprises local, independent solutions to address the water quality and water supply needs of single WRZs. These are generally isolated rural settlements that are challenging to connect to adjacent supply systems due to the difficulties in transporting small volumes of water over long distances.

Table 8.1 Number of new WRZs formed by Group Size

| Merged group size | Number of New WRZs formed | Number of existing WRZs replaced |
|-------------------|---------------------------|----------------------------------|
| Two | 6 | 12 |
| Three | 4 | 12 |
| Four | 3 | 12 |
| Eight | 2 | 16 |
| Total | 15 | 52 |

8.3.1 Benefits of Interconnecting Supplies

In most cases, where WRZs are interconnected, one or more existing water supply systems are rationalised. The rationalisation of supply systems enables smaller and/or unsustainable sources to be decommissioned, delivering improved environmental outcomes and wider associated community benefits. The decommissioning of WTPs through rationalisation also delivers efficiencies through the reduced number of assets to operate and maintain. The Regional Preferred Approach proposes to decommission 42 sources and 38 WTPs. Supplies will only be decommissioned once a new source is connected and operational and abstraction licenses for the new or alternative supply have been obtained.

Larger interconnected water supply systems usually comprise multiple raw and/or treated water storages and WTPs. This provides operational flexibility and increased resilience by enabling supply to be delivered from other connected WTPs or storages during drought periods and at times of supply outage. Larger supply systems are therefore less sensitive to peaks in demand during critical events. For this reason, peaking factors (used to estimate design capacity) are lower for larger WRZs. Similarly, for larger WRZs, the uncertainty in the supply demand calculation reduces, as any potential changes in demand forecasts will have a relatively lower impact for a large WRZ compared with smaller WRZs. As a result, the headroom allowance we need to plan for is lower. The combination of reduced peaking effects and reduced headroom allowance means that the estimated supply volume that we need to provide a 1

in 50 Level of Service (LoS) to customers is lower. One of the key benefits of merging WRZs is this reduction in the design capacity resulting from the increased resilience of larger water supply systems.

Headroom is the term given to a buffer in the Supply Demand Balance (SDB). It accounts for the uncertainty with data and the assumptions used in the supply and demand estimates and forecasts.

The **Level of Service (LoS)** refers to the Reliability of the supply that our customers can expect to receive and is expressed as a frequency or return period of supply failure. A 1 in 50 LoS means that customers would only expect to experience a supply failure, on average, once every 50 years; or there would be a 2% chance of experiencing a supply failure in any given year.

Another benefit of larger interconnected systems is the increased efficiency and economies of scale in delivering leakage reduction measures compared with fragmented systems. As explained in Section 5 of this Plan, we have committed to leakage targets that reduce leakage levels to 21% of average demand for large WRZs where the demand is greater than 1,500 cubic metres per day (m³/day).

Prior to the development of solutions at project level, the SDB will be updated to account for the changes in both the water available for use (resulting from the decommissioned sources), and the changes in demand (resulting from increased leakage targets and reduced headroom and peaking factors). The following section describes the approach that will be applied to re-calculate the SDB.

8.3.1.1 Re-calculation of the Supply Demand Balance (SDB) for Large Interconnected Supplies

As mentioned above, the Preferred Approach for SAA includes two large interconnected systems, each merging eight (8) WRZs to form two (2) new WRZs: Ballyshannon WRZ and Letterkenny WRZ.

The formation of the proposed new Ballyshannon WRZ will involve rationalising four (4) WRZs. Three (3) of these WRZs - Alt Raws, Derrykillew and Meeneragh/Cronalaghey WRZs – currently receive water from Northern Ireland Water. The water available for use (WAFU) from the sources for these WRZs will therefore reduce to zero when the Preferred Approach is in place. The full demand for each WRZ will be supplied from the proposed new surface water abstraction from the River Erne. The sources and WTPs for the remaining four (4) WRZs will be maintained. Therefore, it is only the Deficit in these WRZs (rather than the full Demand) that will be met from the new and/or upgraded sources. Table 8.2 lists the additional supply that would be required from the new and/or upgraded sources for each interconnected WRZ that will form the Ballyshannon WRZ. The table shows the WAFU from the maintained WTPs will be 16.3 MI/d; and the estimated WRZ demand will be 27.7 MI/d. Therefore, the Deficit that would need to be met from new and/or upgraded sources would be approximately 11.4 MI/d.

Table 8.2 also lists the peaking and headroom factors that are applied in the SDB for the existing discrete water supply systems. For the proposed integrated multi-source systems, the headroom factor will reduce to 10% across all WRZs and the peaking factor will remain at 20%. When leakage targets and the smaller headroom allowance is considered, the Deficit will reduce by an estimated 9.2 MI/d.

Similarly, the formation of the new Letterkenny WRZ will rationalise supplies for six (6) of the eight (8) merged WRZs and maintain supplies for two (2) WRZs. This will result in a Deficit of approximately 30.1 MI/d that would need to be met from new and/or upgraded sources (Table 8.3). When leakage targets and the smaller headroom allowance is considered, the Deficit will reduce by an estimated 15.5 MI/d.

When considering all large, interconnected supplies (demand greater than 10,000 m³/day) that will be formed across the region under the Preferred Approach, the 2044 DTCP demand for the merged WRZs will reduce by an estimated 74.7 MI/d, representing 14% of the 2044 DYCP demand for the region.

These supplies include the merged systems connecting to West Clare, Killybegs, Carrick-on-Shannon, Lough Mask and Wetsport and Ballina WRZs.

Table 8.2 Supply Required for the new Ballyshannon WRZ

| Current WRZ | 2044 DYCP* Demand (m ³ /day) | 2044 DYCP* WAFU** from existing supplies (m ³ /day) | Additional Supply Required (from New/ Upgraded sources) (m ³ /day) | Headroom (% of Average Demand) | DYCP* peaking factor (% of normal year average demand) |
|---|---|--|---|--------------------------------|--|
| New WTP at Knader, Ballyshannon on River Erne source | | | | | |
| Alt Raws | 20 | 0 | 20 | 20% | 20% |
| Ballyshannon & Bundoran | 7,090 | 5,270 | 1,820 | 15% | 20% |
| Cashilard | 250 | 0 | 250 | 20% | 20% |
| Derrykillew | 50 | 0 | 50 | 20% | 20% |
| Donegal (River Eske) | 5,040 | 2,750 | 2,290 | 15% | 20% |
| Frosses-Inver | 2,930 | 1,550 | 1,380 | 15% | 20% |
| Lough Mourne | 12,300 | 6,690 | 5,610 | 15% | 20% |
| Meeneragh/ Cronalaghey | 20 | 0 | 20 | 20% | 20% |
| Total | 27,700 | 16,260 | 11,440 | - | - |

*DYCP is the weather planning scenario that is used in our National Water Resources Plan (NWRP) to estimate the supply Deficit that the Plan must address. It represents the period within a dry year where demands can be significantly above average.

**WAFU (Water Available for Use) is the amount of water that can be supplied from a supply system, taking into account infrastructure capacity constraints, treatment losses and planned and unplanned events that can reduce supply

Table 8.3 Supply Required for the new Letterkenny WRZ

| Current WRZ | 2044 DYCP* Demand (m ³ /day) | 2044 DYCP* WAFU* from existing supplies (m ³ /day) | Additional Supply Required (from New/ Upgraded sources) (m ³ /day) | Headroom (% of Average Demand) | DYCP* peaking factor (% of normal year average demand) |
|--|---|---|---|--------------------------------|--|
| Eddie Fullerton Pollan Dam, Glen Lough and Gartan Lough sources | | | | | |
| Buncrana | 1,750 | 0 | 1,750 | 15% | 20% |
| Carrigart-Downings & Cranford | 1,820 | 0 | 1,820 | 15% | 20% |
| Creelough Dunfanaghy | 2,970 | 0 | 2,970 | 15% | 20% |
| Culdaff | 990 | 0 | 990 | 20% | 20% |
| Inishowen West/Carndonagh/ Culdaff | 5,890 | 2,680 | 3,210 | 15% | 20% |
| Fanad East | 1,120 | 0 | 1,120 | 20% | 20% |
| Fanad West | 860 | 0 | 860 | 20% | 20% |
| Letterkenny & Inishowen East & Eddie Fullerton Pollan Dam | 36,840 | 19,440 | 17,400 | 10% | 20% |
| Total | 52,240 | 12,120 | 30,120 | - | - |

*See footnotes for Table 8.2

8.3.2 Cross Study Area Transfers

The Regional Preferred Approach includes five (5) interconnections across Study Area boundaries, including one transfer from the South Louth East Meath WRZ in Study Area 3 of the Eastern and Midlands Region. There is also one small, isolated existing import from a Northern Ireland source that will be maintained to supply Carrickarnon. Collectively, these Cross Study Area Transfers supply less than 1% of the regional Deficit.

For each Cross Study Area Transfer, Table 8.4 lists the ‘Source’ and ‘Destination’ study area, the ‘parent’ WRZ (i.e., the WRZ which is to supply the other WRZ) and the rationalised WRZs (i.e., the WRZs which will be receiving a supply from the ‘parent’ WRZ). These transfers are shown in Figure 8.2 with the letter reference listed Table 8.4.

Table 8.4 Cross Study Area Transfers

| Source SA (Source Region) | 'Parent' WRZ | Destination SA | Destination WRZ | 2044 Transfer volume (MI/day) | Figure 8.2 Reference |
|---------------------------|------------------------|----------------|------------------------|-------------------------------|----------------------|
| SAA (North West) | Ballyshannon/Bundoran | SAB | Derrykillew | 50 | A |
| SAA (North West) | Ballyshannon/Bundoran | SAB | Cashilard | 250 | B |
| SAD (North West) | Lough Mask | SAC | Kiltimagh | 1,190 | C |
| SAD (North West) | Dunmore Glenamaddy | SAF | Kilkerrin/Moylough | 1,660 | D |
| SA3 (Eastern & Midlands) | South Louth East Meath | SAE | Drybridge Collon/Ardee | 3,800 | E |
| Northern Ireland source | NI Source | SAE | Carrickarnon | <1 | F |

When assessing the Options at the Study Area level, the impact of the abstraction volume that is required to supply both the WRZs in the 'Source' Study Area and the WRZs in the 'Destination' Study Area, is considered in combination. As with all new and upgraded abstractions, the volume is limited to the estimated dry year sustainable abstraction threshold.

8.3.3 Cumulative Effects at Regional Level

At the Regional Level, cumulative effects need to be considered in relation to the combined effects from proposals in the seven (7) component Study Areas of the North West Region and includes consideration of the transfers across Study Areas and inter-regional transfers.

For cumulative effects to occur, there needs to be an overlap of temporal periods in some way for the impacts and/or the effect. For example, two strategic-level schemes being constructed at the same time could result in cumulative traffic movements, while two schemes being operated together could result in a drawdown of groundwater levels. A precautionary approach has been taken for the cumulative effects assessment, which assumes that all Options could be constructed at the same time and then all Options would be operated at the same time.

The Strategic Environmental Assessment (SEA) Environmental Report prepared for the RWRP-NW assesses the cumulative effects of proposals across the seven (7) Study Areas related to:

- Biodiversity – for example, a cumulative loss or fragmentation of habitats or changes to a habitat quality through changes in water quality or groundwater levels;
- Water environment (surface water and ground water WFD status) – for example, changes to water quality due to multiple construction projects;
- People and health – for example, nuisance or physical health impacts caused by multiple construction works taking place at the same time;
- Landscape and visual – for example, if there are a number of Options located close together that could alter the landscape character or views;
- Cultural heritage – for example, if the same cultural heritage features are affected by above ground infrastructure in close proximity or the combined effect of loss to undesignated archaeological assets

or from combined impacts resulting in additional changes to water levels affecting archaeological resources; and

- Climate change – combined carbon emissions for the approach as a whole have been considered through the approach selection process. Combined effects on climate change adaptation are also considered including effects on biodiversity and the water environment (for example, changes to water quality due to multiple construction works taking place at the same time).

Sustainability analysis for groundwater and surface water abstractions has already taken account of combined effects from other Uisce Éireann abstractions within and across Study Area or region boundaries.

The components of Preferred Approaches most likely to lead to within-plan cumulative effects are the construction of pipelines and associated works, such as new WTPs and pumping stations. The Cross Study Area transfers within North West Region are shorter in length than some of the within Study Area Options. Cumulative effect on landscape and visual amenity across Study Area Preferred Approaches and from pipeline construction of these cross transfers are therefore unlikely to be significant.

Further details of the cumulative assessment at regional level are provided in Section 9 of the SEA Environmental Report for the RWRP-NW, including the cumulative effects with other plans and programmes.

8.3.4 Transboundary Effects

As the borders of the North West Region in the Republic of Ireland are shared with Northern Ireland, potential for significant adverse transboundary effects have been assessed as part of the development of the RWRP-NW. The potential for transboundary effects will depend on the location and nature of proposed water supply and treatment options. Our assessment of options includes identifying impacts related to proximity to, and potential pathways through WFD waterbodies, catchments and other pathways. The results of these assessments are reported in Section 9.2 of the SEA Environmental Report, which has been published for consultation alongside the RWRP-NW.

For the combination of options included in the Regional Preferred Approach, the SEA Environmental Report concludes that there are no potential significant transboundary adverse environmental effects at the Study Area level or the Regional level for the RWRP-NW. This includes consideration of the single transboundary import from Northern Ireland to serve Carrickarnon WRZ. This is an existing import that will be maintained under the Preferred Approach.

Potential transboundary impacts on Special Areas of Conservation and Special Protection Areas forming part of the United Kingdom's national site network within Northern Ireland have also been assessed as part of the development of the RWRP-NW. The Natura Impact Statement (NIS) that has been published for consultation alongside the RWRP-NW sets out the findings of this assessment. The NIS concludes that there will be no adverse effects on the integrity of any Special Protection Areas or Special Areas of Conservation in Northern Ireland as a result of the Preferred Approaches identified in the RWRP-NW.

8.3.5 Option Types and Component Summary

The Regional Preferred Approach provides a solution to address an estimated 2044 DYCP Deficit of 142 Ml/d. This is achieved through a combination of within Study Area interconnected supplies, local groundwater and surface water sources, five small Group Water Schemes, and six interconnections to sources from an adjacent Study Area and one small import from Northern Ireland Water. It also includes WTP upgrades to reduce water quality risks identified through our barrier assessment.

Table 8.5 summarises the Option Type and the Deficit that will be supplied for the North West Region.

Table 8.5 Preferred Approach Option Types

| Option Type | No. of Existing Benefitting WRZs | 2044 DYCP Deficit Supplied (m ³ /day) | Percentage of Regional Deficit Supplied (%) |
|---------------------------|----------------------------------|--|---|
| Local source (GW) | 19 | 9,180 | 7 |
| Local source (SW) | 20 | 42,080 | 30 |
| Within SA interconnection | 49 | 86,800 | 61 |
| Cross SA interconnection | 5 | 1,950 | 1 |
| Group Water Scheme Import | 12 | 1,550 | 1 |
| Northern Ireland Import | 1 | <1 | <1 |
| WTP upgrade (WQ only) | 14* | not applicable | not applicable |

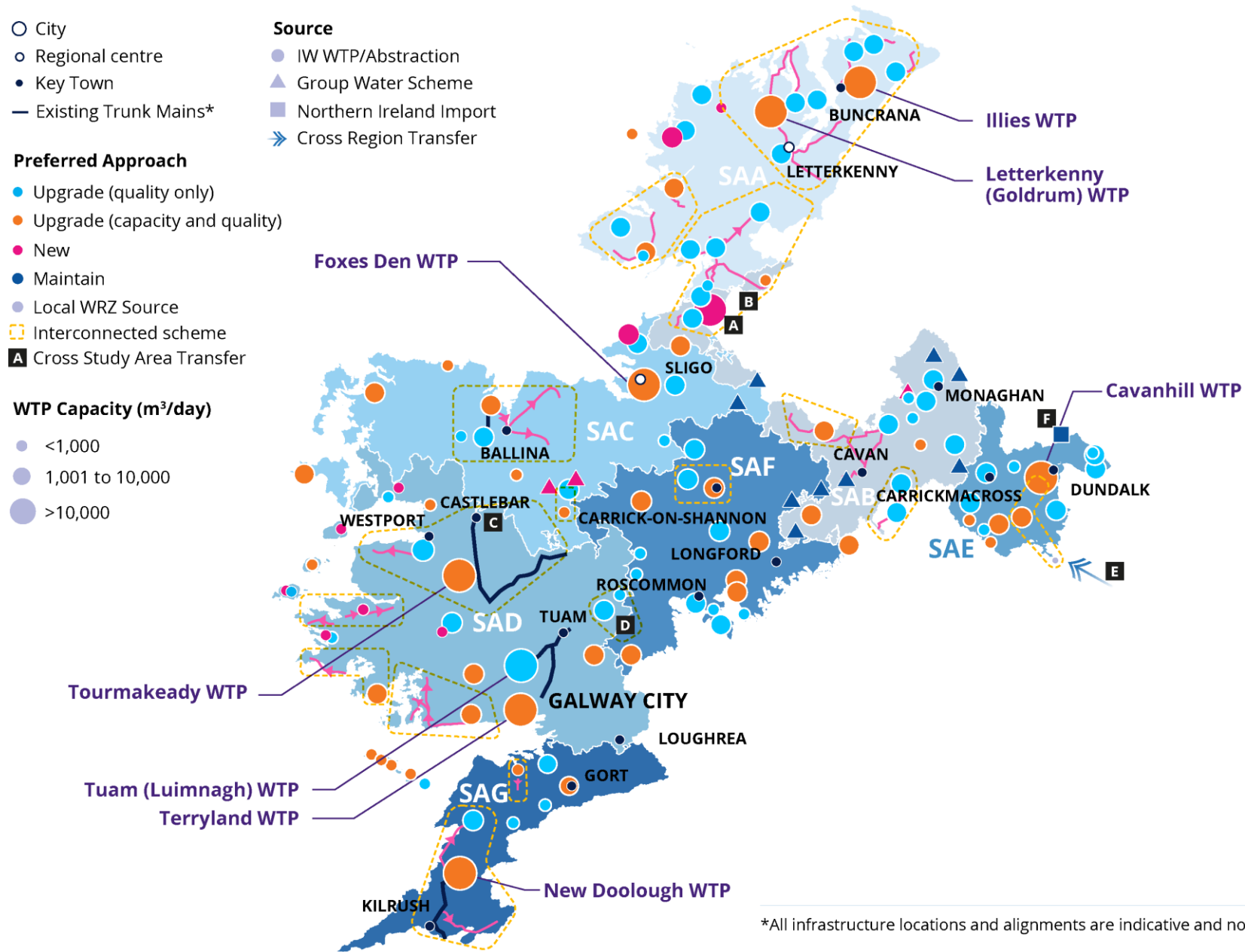
*This is the number of WTPs that will be upgraded for water Quality only. It does not include the existing WTPs that will be upgraded for both WQ and capacity, as these form part of the other Option Types.

As mentioned previously, when the Options within the Regional Preferred Approach are delivered, the number of WRZs across the North West Region will be reduced from 119 to 81 through the development of interconnected systems. Fifteen (15) new WRZs will be formed via 692 kilometres of trunk mains (>300 mm diameter).

Table 8.6 summarises the changes to WTPs and abstractions with the Regional Preferred Approach in place. Figure 8.2 displays the WTPs and trunk mains that will form part of the Regional Preferred Approach; while Figure 8.3 shows the location of the surface water and groundwater sources.

Table 8.6 WTP and Abstraction Summary

| Option Component | No. of Water Treatment Plants | No. of Surface Water Abstractions | No. of Groundwater Abstractions |
|---|-------------------------------|-----------------------------------|---------------------------------|
| New | 10 | 13 | 9 |
| Increased capacity | 45 | 20 | 18 |
| Maintained (WTP upgrade for quality only) | 59 | 50 | 29 |
| Decommissioned | 38 | 32 | 10 |



*All infrastructure locations and alignments are indicative and not to scale

Figure 8.2 Regional Preferred Approach

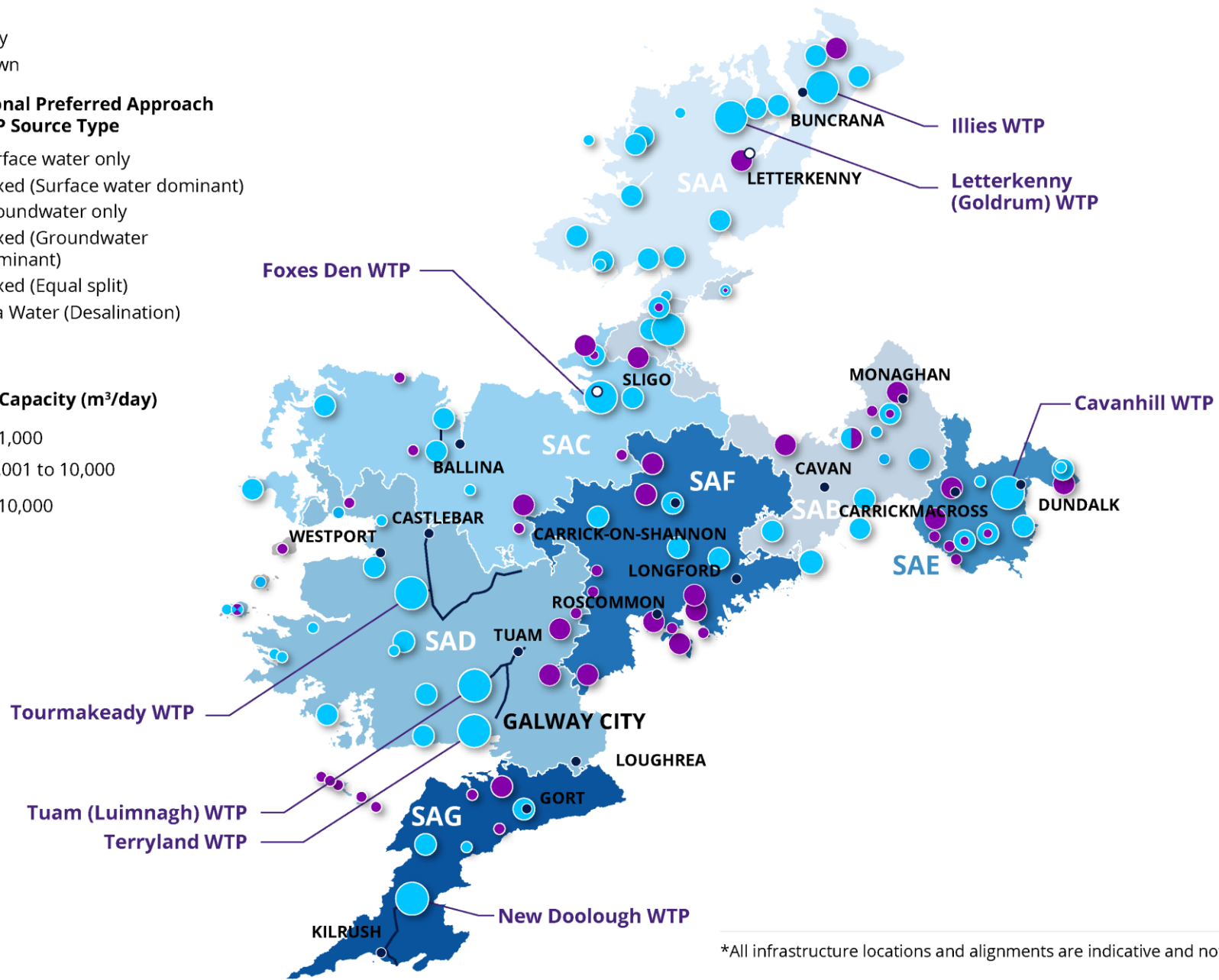
- City
- Town

**Regional Preferred Approach
- WTP Source Type**

- Surface water only
- Mixed (Surface water dominant)
- Groundwater only
- Mixed (Groundwater dominant)
- Mixed (Equal split)
- Sea Water (Desalination)

WTP Capacity (m³/day)

- <1,000
- 1,001 to 10,000
- >10,000



*All infrastructure locations and alignments are indicative and not to scale

Figure 8.3 Regional Preferred Approach – Groundwater and Surface Water Supplies

8.4 Summary

The Regional Preferred Approach considers, at a plan level, what projects/solutions might work best to meet the overall Deficit in the North West Region. Taking a holistic view of the region presents opportunities to improve the sustainable management of our water resources and increase operational flexibility and resilience.

While some small Cross Study Area Transfers have been identified, the potential for a large feasible option with the capability to provide regional interconnectivity (across Study Area boundaries) is limited by the terrain of the North West Region and constrained by the location of environmentally sensitive sites and the sustainability of the water sources. However, the Approach Development Process at Study Area Level, has identified large, interconnected supplies within the Study Area boundaries which will ultimately increase resilience and provide improved environmental outcomes. The interconnection of WRZs form 15 new WRZs, replacing 52 existing WRZs. This will reduce the total number of water supply systems that Uisce Éireann will operate and maintain across the region from 119 to 81.

The Regional Preferred Approach also comprises 70 local WRZ Options. The WRZ Options generally supply rural settlements that are challenging to supply via a transfer due to difficulties in transporting small volumes of water over long distances.

The benefits of delivering the Preferred Approach as proposed include:

- Improved environmental outcomes through the decommissioning of inefficient infrastructure and abstractions including from 42 surface water and groundwater abstractions. This includes 28 surface water sources assessed by Uisce Éireann as not meeting sustainability guidelines during dry weather flows.
- Increased resilience through large, interconnected supplies that include the development of Eddie Fullarton Pollan Dam, Glen Lough and Gartan Lough sources to supply Letterkenny and settlements on the Fanad Peninsula and Inishowen Peninsula; and a new surface water abstraction and WTP on the River Erne at Knader that will interconnect eight (8) surrounding WRZs.
- An estimated reduction in Demand of 74.7 ML/d compared with the alternative of maintaining fragmented supply systems. This reduction is met mostly through increased leakage targets that will aim to reduce leakage to 23% of average demand across North West Region.
- Improved minimum Level of Service of 1 in 50 in drought and winter conditions across all WRZs in the North West Region, as well as increased resilience during normal and dry conditions.

The Options identified in the Regional Preferred Approach will be subject to their own planning and regulatory processes. As mentioned previously, the solutions identified in the NWRP will be delivered on a phased basis and will progress based on a risk-based prioritisation of capital investment, allowing Uisce Éireann to address Need accordingly. It will take a number of investment cycles to progress these projects and they may change in later iterations of the NWRP. Over time, the intention is to ensure the delivery of a more Sustainable, Resilient and cost-effective water supply service.

8.5 References

1. European Commission. 2000. *WFD Directive 2000/60/EC on establishing a framework for community action in the field of water policy*.
2. Water Environment (Abstractions and Associated Impoundments) Act 2022 [Online] Available from: <https://www.irishstatutebook.ie/eli/2022/act/48/enacted/en/html>.
3. UK Technical Advisory Group (UKTAG). 2008. UK Environmental Standards and Condition (PHASE 1). Water Framework Directive.