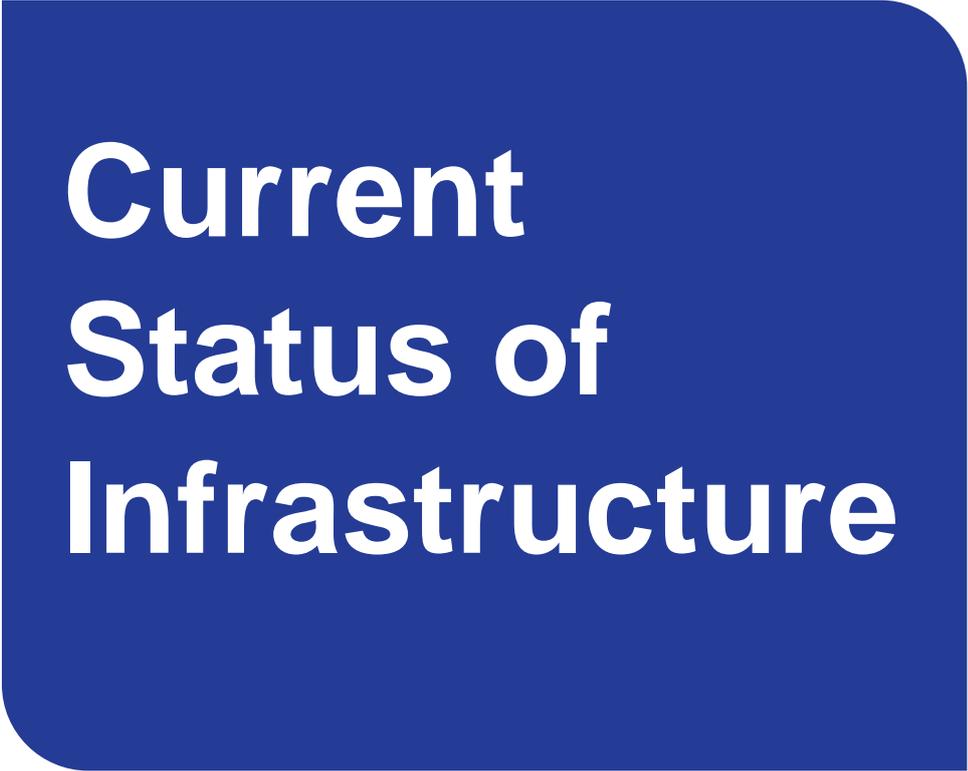
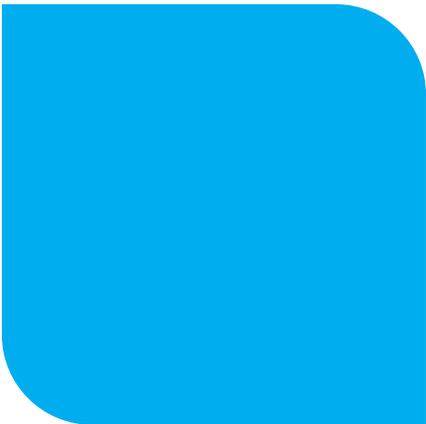


4



**Current
Status of
Infrastructure**



4.1 Introduction

Irish Water are committed to continuous improvement to our water supply network. Throughout the development of the Framework Plan and the draft RWRP-SW there has been a requirement to continue to design and deliver projects, particularly in relation to critical water quality risks (which could have the potential to impact human health) and/or supply reliability issues. For example, this may include projects required to remove 'boil water' notices. These critical works are addressed through our critical infrastructure projects which are completed under our capital investment plans. Critical projects and programmes to address potential public health issues are therefore on-going and are not impacted or delayed by the delivery of the NWRP.

Outside of the NWRP, Irish Water's investment follows investment periods (known as Revenue Control periods) which set out how much Irish Water can spend on projects and programmes for that period. These are subject to oversight by and approval of the Commission for Regulation of Utilities (CRU). Our first Capital Investment Plan covered the period 2014-2016 whilst the second investment plan covered 2017 to 2019. We are currently carrying out work which was identified in our RC3 Capital Investment Plan 2020-2024. Throughout the development of the NWRP and draft RWRP-SW, Irish Water have continued working on a range of existing critical infrastructure projects funded by Irish Water's RC3 Capital Investment Plan and we continue to identify and complete further critical infrastructure projects.

Between January 2014 and December 2019 Irish Water invested €3.9 billion in public water and wastewater infrastructure, with a further projected spend of circa €5bn by 2024. We have invested in a range of water projects and programmes that will support and enable proper planning and sustainable development at a National, Regional and Local Level. The objective of this approach has been to deliver a balanced portfolio of investment across the three (3) themes of Quality, Conservation and Future Proofing.

This section provides in-sight into the current status of the infrastructure within the South West Region, critical infrastructure work that has already been completed and critical infrastructure work that is currently ongoing.

4.2 National Investment Programmes

Irish Water are committed to improving the Quality of water received by our customers. In order to bring about improvements, we have identified critical water quality requirements nationally and are currently delivering a range of national programmes to address high risk water supplies.

National programmes being implemented to address asset reliability and water quality issues include:

- The **Source Protection Programme** which develops or upgrades groundwater sources.
- The **Reservoir Cleaning Programme** which involves inspections of reservoirs and the development of a prioritised works (cleaning/repair) schedule for implementation. The programme aims to reduce network water Quality issues.
- The **Disinfection Programme** which consists of chlorination upgrades and/or UV installations/upgrades to help resolve network water Quality issues.
- The **Lead Mitigation Programme** which is a pilot programme that involves the addition of orthophosphate (a food additive) to the water to prevent lead in domestic pipes dissolving into drinking water. This programme will run in parallel to the Targeted Lead Services Replacement of all lead pipework on the public parts of the distribution system and the Government National Lead Strategy.
- **Trihalomethane (THMs) Reduction** works (Box 4.1).

Box 4.1 – Trihalomethanes

Trihalomethanes are a by-product that can be formed when we disinfect* water supplies that contain naturally occurring organic matter. Within the European Union (Drinking Water) Regulations 2014 (as amended)¹, the maximum permitted levels of THMs in drinking water is set at 100 mg/L. When Irish Water took over the public supply in Ireland in 2014 it was estimated that 74 water supply zones (WSZs) within the public water supply were at risk of exceeding the limits for THMs. The European Court of Justice initiated an infringement case against Ireland for failing to address this issue.

Since then, Irish Water has invested in our water supplies and resolved the THM issues in 65 of the 74 WSZs originally listed as part of the infringement case. The remaining nine (9) WSZs cover a population of 52,000 and will be permanently resolved by 2024.

* It should be noted that the potential health risks associated with THMs are much lower than the risk of serious illness that could result from drinking water that has not been properly disinfected.

Through our National Disinfection Programme, we have upgraded a total of 255 Water Treatment Plants (WTPs). Under our National Lead Programme, we have replaced a total of 38,414 lead services, which represents a significant investment in protecting public health.

We are also targeting investment to improve water Quality in order to lift Boil Water Notices (BWN). Since 2014 we have lifted 243 BWN's impacting over 1.7 million people of which over 40,000 of these people were on BWN's for a period of over a year. Through investment in water assets and infrastructure, the number of customers served by vulnerable water supplies (those on the EPA's Remedial Action List (RAL)) has reduced to its lowest ever level. Irish Water has removed 87 public water schemes from the EPA's remedial action list (RAL) between 2014 and 2020 reducing the number of WTPs on the RAL from 140 to 53.

These national programmes are currently funded and being delivered as part of our regulated Capital Investment Plan 2020-2024 however, due to the condition of our existing asset base and the large number of sites to be addressed, it may take several investment cycles before we have the appropriate risk controls in place across all our supplies. For this reason, the development of our Preferred Approaches, presented in Section 7 and Section 8 of this Plan, consider these water Quality issues alongside the supply demand balance issues. As explained in Section 2 of this draft Plan, our long-term approach will increasingly include catchment management for drinking water source protection in partnership with key stakeholders

4.3 Progress in the South West Region

4.3.1 National Investment Programmes within the South West Region

The implementation status of national programmes across the South West Region is summarised in Table 4.1. Twenty-four (24) of the 243 BWNs that have been lifted since 2013 were located in the South West Region benefitting over 15,000 customers. Currently there are approximately 27 customers on BWN in the region.

Within the South West Region there are currently 11 WTPs which are listed on the EPA's Remedial Action List.

Table 4.1 National Investment Programmes in the South West Region

Study Area	Source Protection Programme	Reservoir Cleaning Programme	Disinfection Programme*
SAH	Works complete at 4 WTPs Works progressing at 3 WTPs	Works progressing at 29 sites	Works complete at 6 sites Works progressing at 63 sites
SAI	Works complete at 1 WTP Works progressing at 2 WTPs	Works progressing at 79 sites	Works complete at 15 sites Works progressing at 64 sites
SAJ	Works progressing at 1 WTP	Works progressing at 62 sites	Works complete at 1 site Works progressing at 61 sites

*Any other requirements within the remaining supplies will be identified via Drinking Water Safety Plans with solutions developed as part of the Regional Plan.

4.3.2 Identification of Critical Infrastructure Projects within the South West Region

Local critical infrastructure projects have and continue to be completed across the South West Region (in-flight projects). These include WTP upgrades to improve water Quality, critical mains replacements to improve supply Reliability, critical network upgrades, reservoir refurbishments, construction of new reservoirs and the installation of new boreholes. These works are important as the benefits of having sufficient water supplies in terms of Quality and Quantity are negated if we cannot distribute the water we produce effectively around our networks. We also need sufficient treated water storage to enable us to respond to planned or unplanned outages on our trunk main and distribution networks. It is likely that it may take 5-10 investment cycles before we address all issues with the existing water supplies. As a result of this, priority projects (such as those to remove sites from the RAL) have been identified.

4.3.3 Completed Critical Infrastructure Projects

Nationally, between 2014 and 2019 we delivered key outcomes to support growth including constructing 11 new WTPs and upgrading 36 WTPs. We have also laid a total of 1,906km of new and rehabilitated water main. Major national strategic infrastructure water projects have also been progressed. Case studies of work completed in the South West Region include:

- The National Leakage Reduction Programme addressing leakage in Baltimore (SAI)², Kilbrin, Castlecor and Ballyhest (SAJ)³ and Cape Clear Island (SAI)⁴ (Box 4.2).
- The completion of the €30 million Kerry Central Regional Water Supply Scheme (Lough Guitane)⁵ (Box 4.3).
- The improvement works for Ballingearry Water Supply Scheme⁶ (Box 4.4).

It should be noted that some critical infrastructure projects have been progressed to support growth as part of our current regulated investment cycle. As such these measures do not improve Levels of Service, they prevent current levels from deteriorating further. Future Need will be addressed through the Preferred Approaches discussed in Section 6 - 8.

Box 4.2 – National Leakage Reduction Programme

Everyday treated water in Ireland is lost through leaks before it reaches our taps. Leaks can be difficult to find because they happen in the vast and complex network of pipes below ground. Many of these pipes are now old and damaged and need to be repaired or replaced to improve our water Quality and supply.

To reduce drinking water lost to leaks Irish Water have implemented the National Leakage Reduction Programme (investing an expected €500 million up to the end of 2021) to provide a more reliable water supply. As part of the National Leakage Reduction Programme, we're working with Local Authorities across the country. This involves fixing or replacing old, damaged pipes and reducing high levels of leakage to provide a more reliable water supply.

Watermain replacement works have been carried out across the South West Region including:

- An investment of €4.3 million on the island of Cape Clear to replace and rehabilitate approximately 11.5 km of aging watermains to reduce water bursts and leakage levels.
- The ongoing replacement of approximately 750 metres of problematic water mains in Lahern, Baltimore. The works will include the installation of new water service connections from the public water main to customers' property boundaries and the connection to customers' water supplies.
- The ongoing replacement of over 4,100 metres of problematic water mains in Kilbrin, Castlecor and Ballyhest. The works will include the installation of new water service connections from the public water main to customers' property boundaries and the connection to customers' water supplies.

The National Leakage Reduction Programme provides various benefits including:

- A more reliable water supply
- Improved water quality
- Reduced levels of leakage
- Individual water connections

Due to the implementation of this programme, we are now saving 166 million litres of drinking water daily.

In 2018 the rate of leakage nationally was 46%, but our ongoing work has reduced this to 38%.

Box 4.3– Kerry Central Regional Water Supply Scheme (Lough Guitane)

Over 62,000 people depend on the Kerry Central Regional Water Supply Scheme. The completion of a €30 million project has enabled these 62,000 customers to be removed from the Environmental Protection Agency’s Remedial Action List (RAL). The new water treatment plant (WTP) is among the largest in the country and provides over 50 million litres of drinking water every day.

Prior to the investment, raw water abstracted from Lough Guitane was not sufficiently treated meaning that customers within the region were potentially at risk from *Cryptosporidium*.

In order to remove the scheme from the RAL the abstraction intakes, pipes and pumping stations were upgraded, 15 million litres of water storage was installed, and additional water treatment processes were installed removing the risk of *Cryptosporidium* and Trihalomethanes (THMs)

The upgrades ensure a sustainable supply of water for residents, businesses and industry and benefits one of the main tourist regions in Ireland including Tralee, Killarney, Castleisland and Castlemaine.

Box 4.4– Ballingeary Water Supply Scheme

Working in partnership with Cork County Council Irish Water has completed works to improve the water supply for Ballingeary and the surrounding area. The existing water treatment plant (WTP) was upgraded due to elevated concentrations of Trihalomethanes (THMs) and other contaminants resulting in exceedances to drinking water standards.

Upgrades to the WTP included the construction of a kiosk to accommodate pumps and treatment related equipment, the installation of two (2) portable carbon filter units and supporting equipment and the installation of an ultraviolet treatment monitor.

The improvement works enabled the supply to be removed from the RAL and safeguarded water supplies for the area.

4.3.4 In-Flight Critical Infrastructure Projects

Some of the in-flight projects across the South West Region are presented in Table 4.2.

Irish Water are investing approximately €40 million to upgrade the water supply for 70% of Cork City through upgrade works at Lee Road water treatment plant (WTP)⁷. Lee Road WTP has had no major upgrade since the 1950s and upgrades are required to remove it from the EPA’s RAL. The existing plant will be replaced with a new plant which is capable of supplying 40 million litres per day (ML/d) of water to the Cork City area. The new plant will be able to meet the needs of Cork City’s growing population supporting the social and economic development of the city.

Working in partnership with Kerry County Council Irish Water is completing an upgrade of Caragh Lake Water Supply Scheme⁸. The existing WTP requires an upgrade to resolve issues with THMs and aluminium which have exceeded drinking water standards. This investment will benefit over 1,800 customers. Required upgrades include the installation of Dissolved Air Flotation and Filtration (DAFF) units and pressure filters, installation of a mixing tank and associated ancillary equipment and upgrades to the WTP to improve removal of various contaminants. Upon completion of the works the water supply will be able to be removed from the EPA’s RAL, safeguarding water supplies for the area.

Irish Water in partnership with Cork County Council are replacing lead service connections from the public water network across the Blackrock area⁹. The work will replace existing lead pipes with polyethylene pipes to improve water Quality due to the known risks associated with the presence of lead in water. Replacement of the pipes will also reduce the frequency of bursts and water outages, improving the supply of water to customers and businesses in the area. Replacement of the pipes and the resultant reduction in bursts will reduce leakage rates in the area. As part of the works, property owners will be notified if there is likely to be lead present within the boundary of their property so that they can make an informed decision as to whether to replace their property pipework.

Table 4.2 In-Flight Projects in the South West Region

In-Flight Project	Study Area	Progress
Lee Road WTP ⁷	SAI	In Progress
Caragh Lake Water Supply Scheme ⁸	SAH	In Progress
Distribution Network Repairs and Upgrades	All Study Areas	In Progress
Blackrock Lead Service Replacement ⁹	SAI	In Progress
National Leakage Reduction Programme	All Study Areas	In Progress

Upon progression with the NWRP and draft RWRP-SW, “In-flight” projects will be assessed against the Preferred Approaches identified and adapted as required. It should be noted that assessments and Preferred Approaches and solutions at this stage are at a Plan Level. The Preferred Approaches will have their own public consultations as part of the development of the draft RWRPs. These public consultations will take place throughout 2022. Environmental impacts and costing of projects are further reviewed at Project Level. No statutory consent or funding consent is conferred by inclusion in the draft RWRP-SW. Any projects that are progressed following this Plan will require individual environmental assessments, including Environmental Impact Assessment (as required) and screening for Appropriate Assessment, in support of planning applications (where a project requires planning permission) or in support of licencing applications (for example, for new abstractions). Any such applications will also be subject to public consultation.

4.4 Summary

In summary, there are asset reliability issues across the distribution network within the South West Region and works will be required over the coming years to address this Need. An overview of the Need across the area is provided in the Study Area technical reports (Appendix 1 - 3).

4.5 Conclusions

Irish Water are committed to improving supply Reliability across the South West Region. This section provides in-sight into the work that has already been completed to improve our water network as well as ongoing and planned work. Critical projects and programmes to address potential public health issues are on-going and are not impacted or delayed by the delivery of the NWRP.

Between January 2014 and December 2019 Irish Water invested €3.9 billion in public water and wastewater infrastructure, with a further projected spend of circa €5bn by 2024. We have invested in a range of water projects and programmes that will support and enable proper planning and sustainable development at a National, Regional and Local Level. The objective of this approach has been to deliver a balanced portfolio of investment across the three (3) themes of Quality, Conservation and Future Proofing.

Irish Water are progressing National Programmes across all Study Areas to address asset Reliability and water Quality issues. They include the:

- Source Protection Programme
- Reservoir Cleaning Programme
- Disinfection Programme
- Lead Mitigation Programme

Across the South West Region, works have been completed to address critical water Quality issues including the Kerry Central Regional Water Supply Scheme and improvement works for Ballingeary Water Supply Scheme. Ongoing works include the upgrade to Lee Road WTP and Caragh Lake WTP. Leakage is being addressed across all Study Areas through the National Leakage Reduction Programme. Distribution network repairs and upgrades are continuing across all Study Areas. These projects are of vital importance and are critical to meeting Ireland's growing water needs.

4.6 References

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