

12 Our Plan - An Overview

Resilience

Our aim is to ensure that by 2020 no centres of population of over 25,000 people (or fewer where special operating factors apply) are critically dependent upon a single water supply asset. We have several such situations that date back to the piecemeal growth of Bristol Water when it took over surrounding council-owned water undertakings. Customer expectations have increased such that these situations are no longer acceptable, as reflected in research behind the Pitt Review. Customers tell us they are willing to pay for improved security of supply.

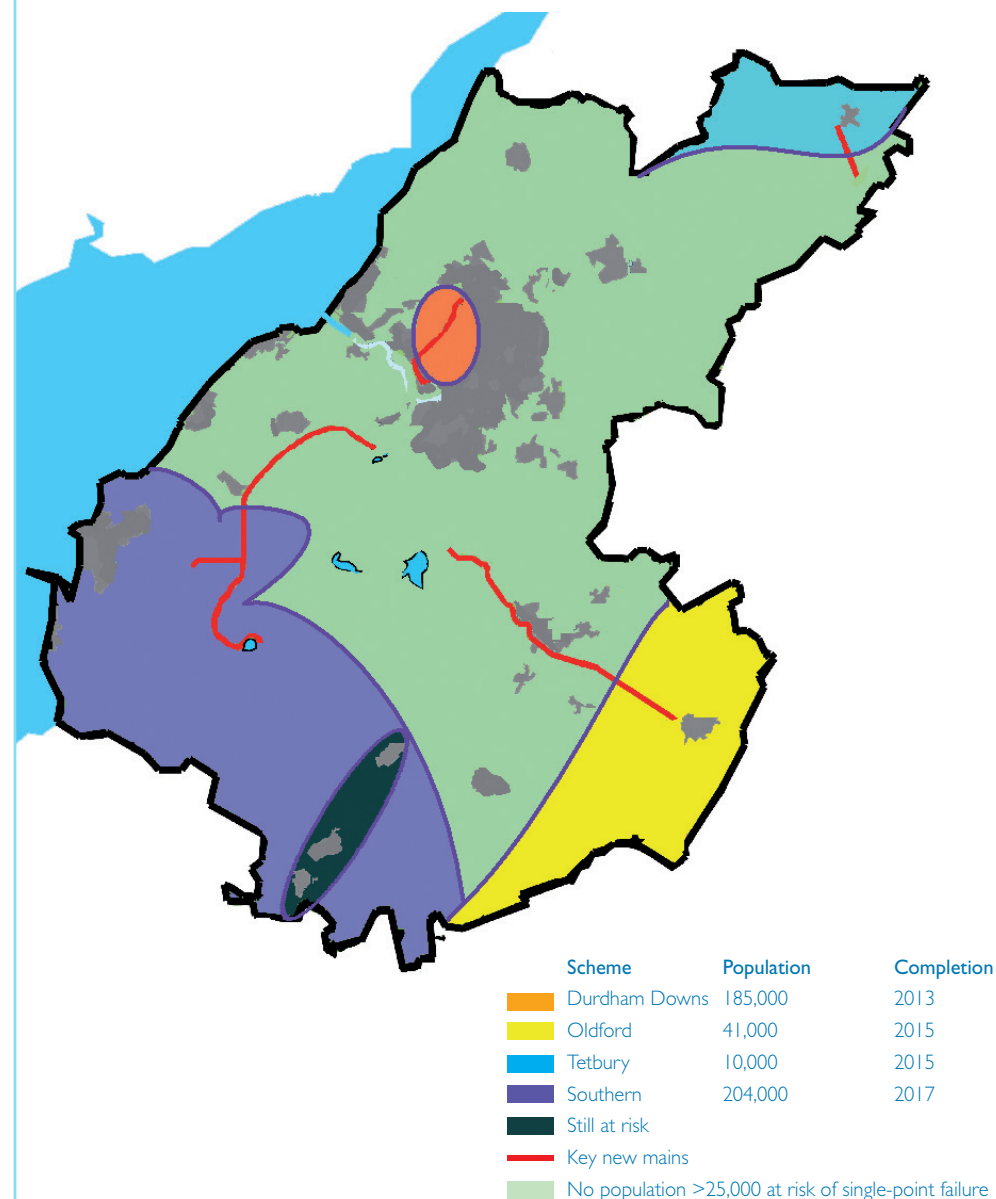
Within Bristol Water's supply area and after completing one major scheme, over 600,000 people are still living in centres of population within our criterion that are critically dependent upon a single treatment works or pumping station. Three schemes (Oldford, Durdham Downs and Tetbury) we propose will remove 236,000 from our "at risk" register by 2015 for only a minimal effect on bills. In addition, we plan two projects to minimise flood risk only at two key sites (Purton Treatment Works and Cooks Corner pumping station).

We also plan to start the Southern resilience scheme in the period. We will also install larger pumps as part of Victoria pumping station refurbishment. This will provide security in due course against failure of the Sharpness Canal when the Southern scheme is completed. These will support a further 407,000 people by 2020.

By 2015, we plan to have started to address all vulnerabilities arising from critical dependence on treatment works and pumping stations. Vulnerabilities relating to service reservoirs and trunk mains will be addressed during the period 2015-20.

Cost benefit assessments have demonstrated that the benefits to customers delivered by each scheme exceed its costs.

Company area with resilience schemes



Resilience scheme overview

| Scheme: | Northern Strategic | Oldford Support | North Bristol Support | | Tetbury Support | Southern Support | Flood protection | Total |
|--|----------------------------|---|--|---------|-----------------|------------------------------|--|----------------|
| Costs- | £m | £m | £m | £m | £m | £m | | £m |
| To 2010 | 25.9 | | | | | | | 25.9 |
| 2010 - 2015 | | 14.3 | 15.8 | 2.4 | 2.9 | 8.3 | 0.3 | 44.0 |
| 2015-20 | | | | | | 21.3 | | 21.3 |
| Comments: | Completed and already used | Net of £1.2m charged to Egford nitrates WQ scheme | Upgrading size of pumps creates protection against Canal failure when North Bristol and Southern schemes are available | | | Scheme spread over 2 periods | 2 small schemes to deal with flood risk only | |
| Headcount protected (not accounting for underlying growth)- | | | | | | | | |
| By 2010 | 196,000 | | | | | | | 196,000 |
| By 2015 | | 41,000 | 185,000 | | 10,000 | | | 236,000 |
| By 2020 | | | | 203,000 | | 204,000 | | 407,000 |
| Total population protected by 2020 | | | | | | | | 839,000 |

shading indicates schemes starting in 2010-2015

Scheme overviews

The Oldford resilience scheme will provide improved security of supply to a population of 41,000 in and around Frome who currently depend upon this works. This scheme will cost £15.5m in total but £1.2m has been allocated to water quality as it will reduce the cost for a water quality scheme to deal with nitrates in the Egford source. This is another example of obtaining a double benefit from expenditure but it means we must start this resilience scheme early in the period.

The Durdham Downs resilience scheme will provide improved security of supply to 185,000 consumers in the centre, north and west of Bristol (including Bristol's two major hospitals). Our storage capacity for treated water in this densely populated area is relatively small and the supporting infrastructure is both old and difficult to access to repair.

Whilst refurbishing a pumping station (included in non-infrastructure maintenance) we plan to up-size the existing pumps. We have allocated 50% of the total expenditure to maintenance and 50% to resilience in relation to the required pumping capacities. This modest incremental cost provides, when the Southern and Durdham Downs schemes have both been completed, resilience against any loss of the Sharpness Canal (as happened before in 1991).

The Tetbury resilience scheme will provide improved security of supply to 10,000 consumers. Although this is below our primary size criterion we have concluded that this scheme is an important priority although it has only a very small effect on prices.

The Southern resilience scheme will enable customers in Weston-super-Mare, Burnham, Glastonbury, Street and the south west of our supply area to be supplied in the event of a failure at either of two treatment works. This scheme will protect up to 204,000 consumers, potentially more during the summer months. It will also provide additional resilience in the event of any failure at Purton by moving water to Barrow to support fully the recently commissioned Northern Strategic resilience scheme.

The Southern resilience scheme will cost £29.6m in total, in part laid simultaneously with a new replacement water main to minimise costs. Because of the strain on prices and financeability from other essential schemes, we believe that in the interests of balance this scheme can be completed over an extended period, becoming available in 2017. Accordingly we have included only £8m expenditure before 2015.

Impact on prices

Despite significant capital expenditure required for these schemes there is very little operating cost or depreciation charges. Consequently a significant improvement in resilience can be provided at a low cost to customers.

| Resilience | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 5 years |
|------------------------------------|---------|---------|---------|---------|---------|---------|
| Capex | £8m | £10m | £6m | £7m | £12m | £44m |
| Opex change | - | - | £0.2m | - | £0.1m | £0.4m |
| K factor needed | - | 1% | 1% | - | 1% | 3% |
| Increase in average household bill | - | £1 | £1 | £1 | £1 | £4 |

All figures in 2007/8 values, rounded to nearest unit

Are we being too risk averse ?

No. We are fully convinced resilience needs improving having considered the risk profile. For over a decade we have been analysing the measures we can take if any of our key assets became unavailable for any reason. In many cases re-zoning to an alternative means of supply, undertaking an emergency repair and relying on water in service reservoirs will ensure that customers receive an uninterrupted supply. However there are several critical points on our system, which if they fail for more than a day, will give rise to a major service failure.

In areas of low population we may be able to provide sufficient water through tankers or bottled supplies to maintain a basic supply. This would include utilising the industry's mutual aid programme. We could manage a population of perhaps up to 25,000 assuming reasonable conditions on this basis. However if the problem persisted customer tolerance and their ability to stay in their homes would be severely challenged.

We have recently completed our Northern Strategic Scheme at a cost of £26 million. This was designed to provide 80% of the normal requirements throughout a population of 196,000 solely dependent on Purton Treatment Works. To plan to provide more water would lead to a step-change in cost which we did not regard as value for money as at 80% of normal volumes we judge normal life can largely continue.

The scheme has already been used twice. In both cases third parties initiated the incident. There have been several "near misses" elsewhere on other parts of our system. These events clearly happen and the consequences can be highly damaging. To avoid all sources of potential problem is as impossible as predicting when problems themselves might happen and would be prohibitively expensive.

Our resilience schemes are needed now but take time to build. In the meantime we live on borrowed time. That these problems exist cannot be denied. Something must be done. There is clear customer support for greater assurance. Our assessment is that this has a much greater importance than some of the customer measures currently monitored by OFWAT.

The backup provided by our proposed schemes is critical to parts of our supply system and justifies their cost using cost benefit analysis. The net present value of benefits from these schemes is computed as £220m compared to costs of £58m over 45 years.

The effect on prices to customers is small because the schemes have low operating and depreciation costs, building to around 3% by 2015. After a thorough review of options and risks the Board is convinced that building these resilience schemes and investing more in maintenance as discussed above to achieve system sustainability have equal and high priority. This position is supported by the majority of our customers.



50% of our raw water needs disappeared overnight

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Further Metering

Metering is clearly the fairest way to charge albeit there needs to be protection for those with special needs or who cannot afford to pay for the water they need to use.

Metering does add costs to the business that must be passed on to customers. These are not insignificant and so it is important to maximise the benefits from metering to offset these additional costs.

We anticipate reductions in consumption through additional metering in our supply/demand forecasting, thus deferring new source development. Metering is also useful in identifying leaks on supply pipes if the meter is installed externally.

Customers are increasingly becoming aware of the benefits of having more control over their water (and sewerage) bills by opting to be charged by metered consumption. We expect the level of optants to accelerate when the price increase for 2010/11 is reflected in unmeasured bills issued in March 2010. No charge can be made for household customers opting in this way and we estimate the capital cost in the next five years to be £10 million.

We have assumed that there will be 12,100 optants in 2010/11 – 4% of those currently not metered - but for this figure to steadily fall thereafter as the unmeasured customer base declines.

We plan to install meters where appropriate when working on communication pipes, offering the customer the option of trialling a metered basis of charge. We believe this is a low cost way of increasing meter penetration and helping further with controlling demand growth.

We plan to meter on change of occupier those unmeasured properties where evidence such as garden size suggests that they may use considerably more water than average households. This minimises the cross subsidy they are receiving from the wider customer base and encourages water efficiency. Even with a capital cost of £3 million, this is estimated as a cost effective way of deferring expenditure on developing new water sources. It is not our policy to meter compulsorily in other change of occupier situations, as we believe this to be poorly targeted and therefore not cost effective.

We plan to compulsorily meter a further 1,900 non-households in a move towards full metering of this segment. This will cost £1m but again is calculated to be cost beneficial.

New houses and commercial developments will continue to be charged by meter. The current recession is having an impact on the current level of new build. We anticipate a return to more normal conditions early in the next period. Our area is designated under Government guidance for substantial increases in new housing over the next 25 years – we cover the implications of this in the next section.

| Meters installed (000) | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 5 years |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Optants | 12.1 | 10.8 | 9.5 | 7.0 | 6.1 | 45.5 |
| Optants with CP renewal | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 5.0 |
| Compulsory with CPs | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.6 |
| Household selective | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 | 9.7 |
| Non-household selective | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1.9 |
| New properties | 4.3 | 4.3 | 4.3 | 4.3 | 6.5 | 23.7 |
| Total | 19.9 | 18.6 | 17.2 | 14.8 | 16.0 | 86.4 |