Portsmouth Water

PRT07.07 LEAD STRATEGY IMPLEMENTATION

CONTENTS

1. SUMMARY

This proposal describes the strategy of Portsmouth Water for the universal (company and customer owned) replacement of lead pipe.

The paper outlines the ambition of the Long-Term Delivery Strategy (LTDS) to remove all lead pipe, however the focus is on the AMP8 plan, **which is to protect young people by removing lead pipe at all the schools and nurseries in the Portsmouth Water area.** This is described in option 3 (below), the preferred option.

The preferred option is supported by customers and represents an ambitious plan for AMP8 that goes beyond the minimum statutory obligations. Building on the AMP7 strategy the proposal addresses lead pipes at schools and nurseries, thereby increasing protection for some of the companies most vulnerable customers.

The preferred option provides learning and experience, which in collaboration with other water companies, provides useful data and information to support any future more extensive program.

The Portsmouth Water Board are committed to public health and are supportive of any economically practical action that Portsmouth Water can contribute towards that ambition. The Long Term Delivery Strategy reflects that ambition and the preferred option, in this paper, accelerates progress towards addressing the challenge for their most vulnerable customers.

A proposal including this strategy, was submitted to the DWI as part of the Appendix B submission in March 2022. Subsequently, as customer priorities and affordability became more apparent, and as part of the internal challenge process, the scope of that submission was reduced. Portsmouth Water have received confirmation (letter, [redacted] dated 29th September 2023) that our proposals should be included in this business plan, though, at the time of writing, we have yet to receive confirmation of their support.

2. NEEDS

A. Overview

The World Health Organisation's (WHO) Joint Expert Committee on Food Additives (JECFA) and the European Food Safety Authority (EFSA) agree that there is no lower threshold for adverse effects of lead on human health. Adverse health effects from ingestion of drinking water which contains even very small amounts of lead, cannot be ruled out.

This evidence has driven the reduction in the lead water quality standard from 10 µg/l to 5 µg/l in the current recast of the EU Drinking Water Directive (DWI, 2021). The reduced threshold becoming law in Europe at the end of a transition period ending in 2035.

Despite considerable research, regulatory attention, and discussion within the water industry, there are no known plans to obligate through statute, a reduction in the allowable level of lead below the current water quality standard in the UK of 10ug /l. However, a recent report by the Drinking Water Inspectorate (DWI) (DWI,2021, p.12) suggests water companies will, in the foreseeable future, be targeted with 5ug/l at the consumers tap.

Portsmouth Water estimate that they have over 80,000 properties with lead pipe in their drinking water systems.

B. Supporting Our 'Vision'

The vision described by Portsmouth Water and supported by its customer comprises four key pillars. They are to:

- Secure and deliver water supplies which are high quality, reliable and sustainable.
- Work in partnership with our customers, communities, and stakeholders.
- Invest in the future to meet growing environmental challenges.
- Achieve affordable water for all. Always.

This investment proposal supports the second and the final components of the Portsmouth Water vision. The proposal represents an ambitious plan to supply high quality water services to our customers, at the lowest possible cost.

The strategy of previous years is built upon, and with the adoption of a universal strategy, Portsmouth Water is looking forward in the expectation that future regulatory activity will increase the focus on this important public health challenge.

The need to provide high quality customer service is well understood in Portsmouth Water who agree that the removal of lead from drinking water is of a similar, though currently less-well publicised, imperative to that of Combined Storm Overflows [redacted], DWI, quoted in Utility Week October 2022).

The 25-year plan in the Portsmouth Water Long Term Delivery Strategy (LTDS) reflects this expectation by including the universal removal of lead pipe by 2050 in its long term planning.

C. Supporting Performance Commitments

Table 1 defines linkages to common performance commitments and to additional commitments prioritised by Portsmouth Water.

The relationships may be interpreted as follows:

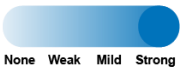
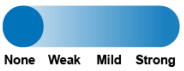
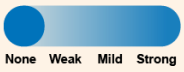
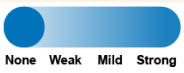
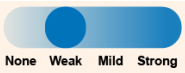
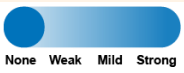
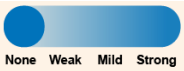
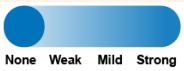
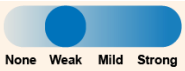
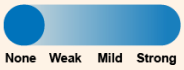
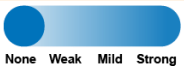
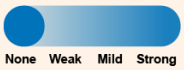
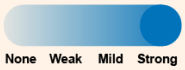
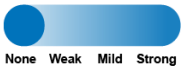
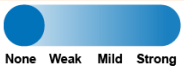
Strong	Weak	None
		
The proposal has the potential to directly and significantly impact the performance commitment or the corporate priorities. The impact will not, by itself, improve current performance, though may, if the risks surface, significantly and negatively affect current performance.	The proposal has very limited impact on the performance commitment or corporate priorities.	There is no perceived impact on the performance commitment or corporate priorities.

Table 1: Links to performance commitments

Performance commitment	Relationship	Notes
Water Supply Interruptions		There is no effect on this measure
Compliance Risk Index (CRI)		There is no effect on this measure
Per Capita Consumption (PCC)		There is no effect on this measure
Leakage		Replacement of customers Lead pipes may reduce leakage
Unplanned Outages		There is no effect on this measure

Mains Repairs		There is no effect on this measure
Pollution incidents		There is no effect on this measure
CMex, DMex, BR-Mex		We also expect our lead strategy to positively impact views from our local school customers
Customer Contacts WQ		Customer contacts may be increased during the replacement program.
Greenhouse Gas emissions		There is no effect on this measure
Biodiversity Index		There is no effect on this measure
Carbon Footprint		There is no effect on this measure
Low customer bills		The preferred option has a slight adverse effect.
Corporate responsibility		The Portsmouth Water Board have indicated a strong belief in the public health benefits of lead pipe removal.
Electricity usage		There is no effect on this measure
Materials usage		Slight adverse effect through renewal program
Community partnerships		There is no effect on this measure

D. Historical Perspective

At the beginning of AMP 7, the Portsmouth Water strategy for reducing the risk associated with lead pipes comprised a blend of: practical measures being, initiatives aimed at better understanding the practical implications of lead risk reduction and lead pipe removals, and education-based measures.

The practical measures were:

- [redacted]
- Replacement of the company's lead communications pipe where an internal threshold of 8µg/l is not met.
- In conjunction with replacing the company's asset, consideration of the benefits of also replacing the consumer supply pipe. In practice, customers are encouraged, and supported, to replace their pipes at their expense.
- Consideration of the benefits of opportunistic lead communication and supply pipe replacement from planned work on the distribution system. (e.g., when preparing pipework for the installation

of meters). In practice, at the time of writing, no such work has been executed due to the cost and impracticalities of amalgamating very different work types.

- Replace any company-owned lead communication pipes on properties where lead is identified during the mains renewal programme. This has been standard practice throughout AMP7.
- Work with local authorities to identify vulnerable consumers, and to identify appropriate solutions, including the replacement of lead pipes in public buildings (e.g., when refurbishment is carried out in local authority housing). Portsmouth Water have supported various local committees and wider regional groups.
- Work with health protection teams to identify vulnerable consumers and appropriate solutions, in particular, for schools and nurseries. Schools and nurseries have been identified using data held internally and this is levered to support the PR24 LTDS recommendations.
- Have in place a communications and education strategy, involving health professionals and other organisations, to make consumers, and other stakeholders, aware of the risk of lead in tap water, what can be done to mitigate the risk, and who has responsibility for lead pipes. Portsmouth Water have supported various local committees and wider regional groups.

The research-based initiatives were:

- A series of trials exploring the different techniques available to reline or replace Customers' communication and supply pipes. This was anticipated to be a combination of a desktop study, discussions with contractors and suppliers, and a series of small trials to establish the feasibility, industry best practice and level of customer disruption caused by the work. Specific outcomes included gaining an insight into the cost of each replacement technique and understanding the cost implications in replacing lead pipework across a whole affected zone. Feedback from other companies undertaking similar trials indicate there is little engagement from customers in relation to adoption of the customers supply pipe for replacement programmes, and limited success with relining of pipes. Customers were also unwilling to pay for replacements. Further, the DWI's expressed opinion (DWI, 2021, p36) was firmly against relining, describing the technique as 'undesirable as a long-term solution' (ibid).
- To engage with customers and establish a baseline knowledge of lead for those the Company supplies. To understand the gaps and provide information/training as required. To determine the levels of support of customers from different socioeconomic backgrounds to change their supply pipe. To determine customers willingness to pay and the contribution they are willing to make towards the capital cost of replacing the service.
- To understand what benefits are provided in a changing regulatory environment for the company to invest significant sums in supply pipe replacement. Any strategy should be sufficiently robust to adopt changes to regulations and should derive benefits that make it worthwhile for both customer and Company. The regulatory challenges and uncertainties remain. The significant costs associated with a national lead removal program dictate a collaborative approach by Water Companies and regulators. This, Portsmouth Water are actively participating in.
- To liaise with local authorities and the local Director of Public Health or Consultant in Communicable Disease Control to agree a collective approach to identify vulnerable consumers and to identify appropriate solutions. Portsmouth Water attend the regional Public Health Meetings held by Hampshire and Sussex where the local Environmental Health teams for the local councils also are in attendance. Any regulatory failures are discussed for learning opportunities along with any potential opportunities for public engagement and advice. This continues.
- To develop a communications and education strategy, involving health professionals and other organisations, to make consumers, and other stakeholders, more aware of the risk of lead in tap water using some of the ideas from the UKWIR research of "Lead Pipe Replacement - AMP6 and Beyond". This will involve consideration of the customers preferred modes of communication

such as television, radio, and leaflets. Portsmouth Water undertook this work, and the results are recorded and documented in "PRT3258 Lead Strategy Completion Report FINAL". The feedback from this communication strategy was that engagement and understanding from customers is only really seen when there is direct 'face to face' engagement. For example, during mains renewal or meter replacements. It has been found that there are more shared supplies than was anticipated.

- To define an effective audit strategy to demonstrate the effectiveness of the above. This remains as work in progress though is recognised as an important facet.
- To implement the above communications plan, including publication of Company literature and updating the Company's website. This was completed and is documented in the Portsmouth Water document: "PRT3258 Lead Strategy Completion Report FINAL".
- The ambition of Portsmouth Water is to learn from this historical experience and continue to improve and evolve their plans to support the long term removal of lead pipe.

E. Regulatory and Statutory Compliance

The hazard is not present in the raw water or the water entering supply from the treatment works but is a hazard at consumers taps due to the presence of lead pipes etc. both within the network and within customers properties.

A summary of sample results for 2020-2023 samples taken at zonal properties is included in table 2.

Table 2: summary of lead samples in AMP 7.

Year	Sample numbers	Average ug/l	Min Ug/l	Max ug/l
2020	79	0.392	0	5.1
2021	129	0.409	0	5.9
2022	926	0.304	0	11.3
2023 To date	244	0.421	0	16

A summary of those samples contravening the maximum allowable threshold of 10ug/l is given in table 3.

Table 3: summary of samples exceeding 10ug/l threshold. 2020-23

3. OPTIONS

1. Overview

Three options were considered.

Option 1 - The replacement of all customer and Portsmouth Water owned lead pipework.

Option 2 - The replacement of Portsmouth Water owned lead pipework (only).

Option 3 – Replacing Portsmouth Water and Customer owned lead pipe at schools and nurseries, since these represent a cohort of customers who are particularly vulnerable to lead in their pipework. This is the preferred option.

Option 4 – To continue the current strategy, and do no more in AMP8 than in AMP7, remains a tenable option. However, since this involves no additional enhancement expenditure and costs are expected to be included in the base allowance, the option is not developed here. The AMP7 strategy is discussed in summary detail in 11, 12 & 13 (above).

To develop the options around Lead pipe replacement, Portsmouth Water engaged WRC to validate the estimates associated with the prevalence of Lead within its network. WRC utilised a 2-strand approach using local authority data and Portsmouth Water data. A central estimate of some 80,288 potential instances were identified (WRC report number UC16645, 15th December 2022).

A. Option 1

Description

Universal Replacement of all lead pipe.

This option was discounted on various grounds, including:

(a) affordability,

(b) customer support,

(c) uncertainties surrounding the supply chains deliverability in AMP8,

(d) uncertainties surrounding regulatory treatment and support, uncertainty surrounding cost beneficial and technically acceptable solutions (e.g., lining vs replacements).

This option could not be delivered in a single AMP and would have to be phased over the period 2025-2050 as a minimum.

Long-term Delivery

The long-term removal of all lead pipe remains the primary goal and this is reflected in the Long-Term Delivery Strategy (LTDS). 2050 is currently suggested as the target date by which Portsmouth Water should remove all lead pipe.

Assuming regulatory and customer support, a phased universal removal program beginning in 2030 is proposed as the core pathway, with work prioritised to address the high-risk areas first, and coordinated to also reduce levels of Orthophosphate dosing.

Accordingly, the adaptive pathway process will be used to manage the implementation, its phasing, and its timing and trigger points will be associated with statutory developments.

Three reference scenarios (demand, climate change, and environmental ambition) may not affect this strategy since, lead pipe removal is driven largely by regulatory evolution and the increasing awareness of the public health risks associated with lead pipes in water distribution networks. If the statutory provisions change then Portsmouth Water will adapt its response accordingly.

Option 3 (below) in this paper is in line with the core pathway of the LTDS. This option presents the ambition of Portsmouth Water Ltd to make early headway, to learn and prepare, and to share that experience.

Costs

A summary of costs associated with this option are given in table 4 (below).

Table 4: cost summary associated with universal replacement.

Households	P.U. cost	Orthophosphate benefit (£M total on completion)	Leakage benefit (undefined)	Total cost £M	Implementation period (linear)
80,288	£3000	0.65	0	240	2025-2050

Costs are presented on a 22/23 price basis.

Costs are estimated based on internal data held by Portsmouth Water Ltd and local contractors familiar with working in residential properties.

The confidence associated with estimates is believed to be within +15 to -20%. More data is required, particularly on the real-world prevalence of lead pipe in the Portsmouth Water supply area, on the practical difficulties of removing it in dense urban conurbations, and on viable technical alternatives.

The costs are considered enhancement costs since they relate to entirely exogenous factors.

Costs are broadly in line with the benchmark costs presented in the DWI report (DWI, 2021).

Benefits

- The option would accelerate the removal of a significant public health risk.
- The option would spread the costs of removal over the widest possible timescale.
- The option would remove the need for Orthophosphate dosing.

B. Option 2

Description

Replacement of only that lead pipe owned by Portsmouth Water.

This option was discounted on similar grounds to option 1 (above), and the additional concern surrounding the benefit to public health associated with partial removal. DWI suggest the replacement of lead pipes to the compliance tap is highly likely to be beneficial in high-risk zones and likely to be cost beneficial in medium and low-risk zones in England. And, that replacing supply pipes to the property wall only is not likely to be cost beneficial (DWI, 2021: 77-78).

This option could not be delivered in a single AMP and would have to be phased over the period 2025-2050 as a minimum.

Long-term Delivery

This option is not included in the LTDS since Portsmouth Water believes that: this would leave many customers with lead pipe remaining in their own water supply pipes, the option does not remove the public health risk, the option would not remove the need for Orthophosphate dosing, and that this is unlikely to represent the regulatory response.

Costs

A summary of costs associated with this option is given in table 5 (below).

Table 5: cost summary associated with replacement of Portsmouth Water owned lead pipe.

Households	P.U. cost	Orthophosphate benefit (£M total on completion)	Leakage benefit (undefined)	Total cost £M	Implementation period (linear)
80,200	£1750	0	0	140	2025-2050

Costs are presented on a 22/23 price basis.

Costs are estimated based on internal data held by Portsmouth Water Ltd.

The confidence associated with estimates is believed to be within +10 to -15%.

The costs are considered enhancement costs since they relate to entirely exogenous factors.

Costs are broadly in line with the benchmark costs presented in the DWI report (DWI, 2021).

Benefits

- The option would accelerate the removal of a public health risk if customers could be persuaded to remove their own lead pipes.
- The option would spread the costs of removal over the widest possible timescale.
- The public health benefit of lead pipe removal is not likely to be fully realised.

C. Option 3

Description

This represents the preferred option.

This option contains the following elements included in 3 (below). Components that comprise the current AMP 7 strategy (1. below) are within the base cost allowance and the costs are not reflected here. The component (2. below) associated with the Smart Metering Program is integrated within the 'Smart Metering investment plan and the costs are not reflected here.

Continue AMP 7 strategy.

- Continue the industry-wide learning.
- Continue the local education, customer awareness and non-fiscal support.
- Continue the current practice of Orthophosphate dosing.
- Continue the practice of replacing Portsmouth Water lead pipework where it is encountered during the Mains renewal process.
- Continue the current practice of replacing Portsmouth Water Lead pipework if the customer replaces their own.
- Continue the sampling and monitoring regime.
- Develop an understanding of how the LTDS may be supported by the supply chain, specifically within the Portsmouth Water area, and make any necessary preparations for AMP 9 onwards.
- Feed experience into the industry collaboration framework.

Smart Metering Program

Co-ordination with our Smart Metering Program to positively identify and build a database of instances of lead for future mitigation.

This proposal

Address the very highest risk priority cases. Here defined as universally replacing all lead pipe up to the institutions first tap at:

- Primary schools.
- Nurseries.
- Middle deemed primary schools.
- 16-plus schools.
- All-through schools.
- Secondary schools.

The additional ambition outlined would include:

- A desktop study to define candidates.
- Site surveys to confirm candidates.
- Consultation and arrangements
- Remediation work
- Communications and PR

The proposal was submitted to the DWI in March 2023, as part of Portsmouth Water's 'appendix B' submission. However, at the time of writing, no response has been received from the DWI.

The appendix B proposal has been scaled back during customer challenge and affordability reviews within Portsmouth Water's PR24 process.

Long-term Delivery

This option is included in the LTDS and defined as the core pathway. The option is 'no-regrets' and lies on all adaptive pathways of the current Portsmouth Water LTDS. The LTDS includes the monitoring of the statutory backdrop and is sufficiently flexible to adapt to any legislative change.

Costs

A summary of costs associated with this option is given in table 6.

Table 6: incremental cost summary associated with universal replacement of Lead pipe according to option 3.

Component	P.U. cost £	AMP8 capex £M	Cost source
Project and Program management		0.650	Internal
PR. Communications		0.350	Internal
Desktop study, Surveys and GIS updates etc.		0.172	Internal
Consultation/Agreements/Legal fees with schools including governing bodies		0.170	Internal
Universal remediations subcontract 60 properties	9000	0.540	Internal
Risk and Contingency		0.188	
PWL Overhead and Management fee		0.282	
Subtotal		***2.353***	
Intrinsic allowance (deduction)		0.000	
Delivery efficiency target (deduction)		0.353	
Total		**2.000**	

Costs are presented on a 22/23 price basis.

Subcontract costs are estimated and are based on a likely scenario of 60 affected schools and nurseries. Costs include all replacement costs, which as well as including the well understood costs associated with roadway and verge components, must also include the less well understood, reinstatement of playgrounds, pathways, driveways etc., as well as the internal reinstatement costs associated with schools' fabric. Costs reflect the increased difficulties in gaining access to schools and assume 'school holiday time only' access will be available, and that coordination with other contractors to the schools will be required.

Local Authority data suggests the total count of potentially affected schools and nurseries is 374. The estimate of 60 represents an estimate based on a reduced proportion of the total ratio of properties affected per count of total properties, in the Portsmouth Water area.

The cost of replacement of Portsmouth Water lead pipe is well understood and resides in Portsmouth Waters historical contract data. Replacing customer pipes is less well understood and the data lies with 3rd party contractors, who have been consulted as part of the PR24 development process. Much less well understood is the cost of replacing lead pipes within the boundaries of schools and nurseries.

The confidence associated with estimates is believed to be within +15 to -10%.

The costs are considered enhancement costs since they relate to entirely exogenous factors.

Costs represent 'one off' capital expenditure only. Agreements will be entered into to 'pass on' appropriate asset ownership, after an initial warranty period.

The operational costs of the current arrangements are within base allocation and remain unchanged.

There is no reduction in Orthophosphate dosing as a result of this option.

4. BENEFITS

The option would accelerate the removal of a public health risk to those customers of Portsmouth Water who are most vulnerable to lead in the water supply.

The option limits expenditure until increased regulatory certainty is forthcoming. The option hence provides customer and societal benefit whilst constraining customer bill rises.

The option limits interventions to commercial entities whereby legal agreements can be achieved with reasonable certainty.

The option provides a platform to increase public awareness prior to a broader program and limits the adverse PR that may be associated with other selective measures.

Further learning would accrue before any broader replacement program were undertaken. Of particular note are the costs and particularities concerning lead replacement within property boundaries, and the difficulty and costs surrounding universal replacement in densely populated urban settings with all the attendant traffic and access management challenges.

5. ANALYSIS OF OPTIONS

Option 1

Advantages

- Provides the earliest and greatest public health benefit.
- Starting a universal program in AMP 8 spreads the cost over the longest period.
- Provides greatest opportunity to integrate with the proposed smart metering program.
- Removes Orthophosphate dosing early.
- Provides greatest leakage benefit.

Disadvantages

- Did not gain sufficient customer support.
- Costs are high and financing may be problematic.
- Costs are uncertain and require further experience and data.
- Disruption to customers is very high.
- Extends considerably beyond statutory requirements.
- Regulatory position around supply pipe ownership and accountability is uncertain.
- Technical uncertainties still exist around mitigation strategies (lining / replacement options)

Option 2

Advantages

- Provides an early start on part of the challenge.
- Spreads costs over a long period.

Disadvantages

- Provides limited public health benefit.
- Relies on customers to replace their own supply pipes.
- Will not remove the need for Orthophosphate dosing.
- Disruption to customers is high with limited public health benefit.
- Disruption will be repeated if customer supply pipes are later replaced.
- Provides very limited leakage benefit.
- Costs are high with limited benefit.
- Costs are uncertain and require further experience and data.
- Regulatory position (DWI,2021) suggests this is not an option of choice.
- Technical uncertainties still exist around mitigation strategies (lining / replacement options)

Option 3

Advantages

- Targets those customers most vulnerable to lead in their water.
- Supported by customers (see page 20-22 below).
- Provides significant public health and societal benefit whilst restraining AMP 8 costs.
- Provides rich learning and cost data and facilitates collaboration and information sharing.
- Meets corporate ambitions around corporate responsibility and social benefit.
- Limits exposure to technical uncertainties surrounding pipe lining technologies.
- Limits exposure to regulatory uncertainties around pipe ownership.
- Is affordable (see page 22 below).

Disadvantages

- Compresses timescale if LTDS ambition is to be met, deferring costs to later AMPs.
- May draw some negative feedback from those customers whose lead pipes are not replaced early.

A. Best Option

Options 1 and 2 are discounted for the reasons stated in paragraphs B4 and C20 (above).

Option 3 is preferred since it provides a platform to continue a wider roll-out program. The option provides significant opportunity to address the most vulnerable customers in society, and will provide cost and other certainty for a broader program beginning in AMP 9 which (subject to customer and regulatory support) plans to begin a universal, company -wide replacement program. The collaboration and learning may also provide better certainty around technical and risk approaches to lining technologies, and better commercial certainty around asset ownership and regulatory developments.

Option 3 also provides a program that can be efficiently delivered in AMP8 by Portsmouth Water and its contractors. Both parties can develop their understanding of working on customer premises and build that learning into the broader universal replacement plan in the LTDS.

B. Customer Support

We implemented our new Engagement Strategy in 2020, making sure it met our current and future needs and the changing relationship we want to create with our customers and communities.

The focus has been on expanding our insight gathering and providing an embedded approach to drive not just our business planning processes and strategies but also collaborating on our day-to-day service delivery, putting customer and community views at the heart of our plans and approaches.

Our conversations spanned five themes: the core service; affordability; resilience; environment; and social purpose. The figure below shows how our conversations covered each of these themes.

Full details of our engagement process, findings and how those findings have influenced our plan can be found in the supporting document PRT03 Engaging and Understanding Our Customers and Communities.

A very high-level summary of what customers told us from the concerns and priorities big conversation is:
Environment: preserving the local environment is important but seen as a medium priority; long-term plans should not be at the expense of the environment; go faster where cost effective to improve biodiversity.

Reliable service: ensuring efficiency means minimal leakage, preference for 2040 target to halve leakage; continuing to avoid long term interruptions and long-term security of supply are critical.

Water quality: high levels of acceptability to improve performance at no additional cost on the bill.

Customer service: satisfaction is strong, but service touchpoints need updating; vulnerable customers value easy customer journeys and good communication.

Affordability: is becoming more of a concern; customers want stable bills with intergenerational funding even investment profiles, with support for the vulnerable.

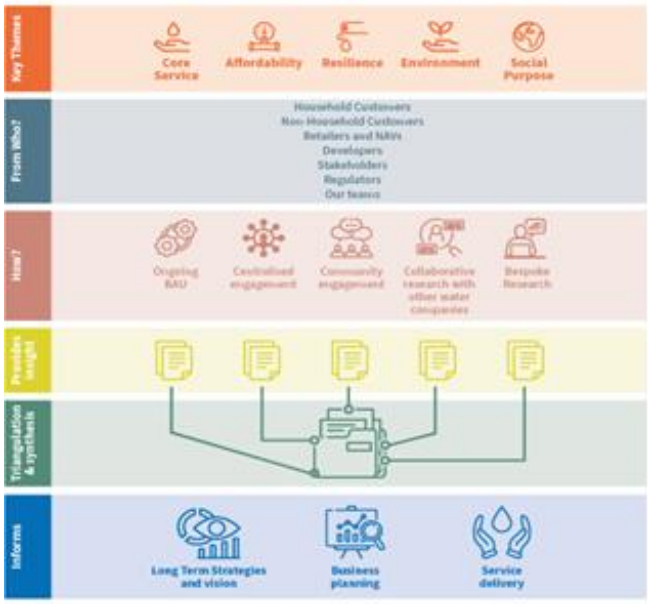
Our research with customers has focused on:

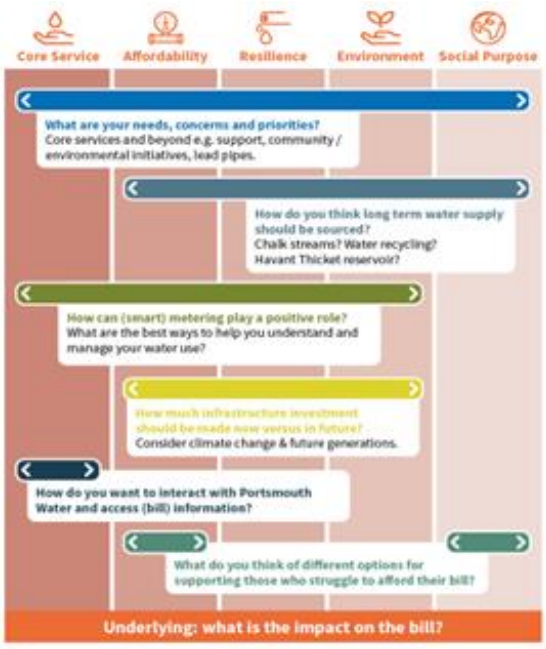
The overall support for this activity being a priority.

Considering the impacts of this being potentially an emotive subject with our customers.

Our strategy alongside our BIG conversation framework has provided ongoing research insight as well as identifying gaps to drive bespoke research when necessary.

Figure 3: Engagement Strategy and Big Conversation Framework





Whilst not all research is summarised, we have included key research that has informed the insight:

A key element of our 25-year vision is the removal of all lead pipe from our system whether company or customer owned.

This vision extends beyond our minimum statutory obligations building on our AMP7 strategy and the insight from our engagement has shaped our plan for this business plan.

We undertook a number of engagement activities to support our approach in the business plan which helped us to adapt our plans in the LTDS.

Initially we saw that customers perspective of this activity as a low one which was evidenced in research including:

(a) Consumer Panel Barometer survey – Wave 1 – March 2022

This survey was undertaken with 700 participants of our Water Talk panellists, all of whom were bill payers.

Insight Objectives:

- Awareness of Portsmouth Water.
- Satisfaction levels.
- Priorities on what Portsmouth Water should focus on in the future.
- Awareness of water resource situation in the region.
- Views on future water resourcing options.

We asked customers to score out of 5 their view on how much of a priority Replacing Lead pipes was for them. This resulted in a score of 3.24 out of 5 making this equal second to last in a priority list of 15.

(b) Customer Advisory Panel – Report 1 – June 2022

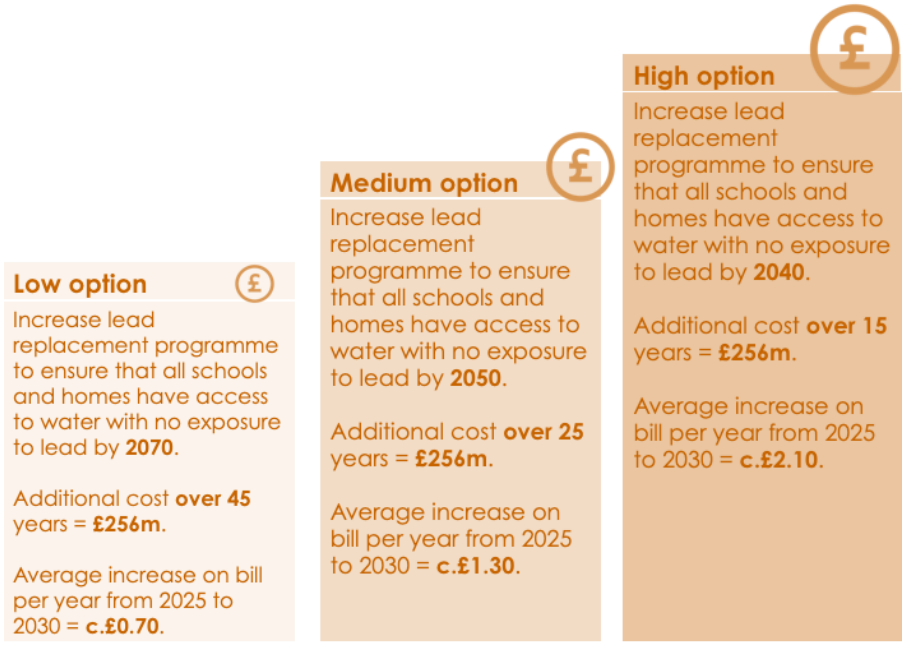
Over a similar engagement phase, we tested the views of customers about this element of our vision and established:

- Many customers were surprised that lead pipes had not been eradicated a long time ago.
- They wanted more details on efforts being taken to remove these pipes from the system.
- Only a minority had any awareness already of our ambition already to fulfil this vision.

In this research we saw that certain elements of the conversation drew an emotive response from customers (this and water poverty particularly) once they better understood the challenge and was given a high priority in this research by our customers.

Plan Choices Research

Having seen our customers initial priority for this activity, coupled with understanding more about how customers react to this subject we continued to explore our plan choices (alongside other plan elements) using our consistent approach of presenting to customers our low to high options, including costs and outcome impacts we presented customers with 3 options of:



Participants in this research opted for the 'High Option' meaning that all schools and homes have access to water with no exposure to lead by 2040.

Supporting views were:

- Customers felt that removing lead and reducing chemical use (used to negate impact of lead currently) would have a positive impact on health with a particular focus on young children.
- Recognised that not everyone can afford to have pipes replaces and some customers (e.g. tenants) might not be authorised to do so
- Wished to prioritise schools for lead pipe replacement.

Customers had some concerns, not with the ambition but how we would be able to deliver this programme due to:

- How easy it is to understand the scale of the problem as understanding how many households are out there with lead is difficult to assess.
- Some remained concerned that due to the potential health impacts that this wasn't being given a higher priority.
- Customers recognised that achieving the ambition of full elimination may be hard as not everyone will want the disruption to their property.

"I'm not sure how realistic it is because I don't know how much work it actually is to replace these."

(HH Customer. Future)

"It's relatively important issue but I don't know how big the problem is."

(NHH Customer)

Triangulating the evidence

Initially customers ranked lead replacement as a lower priority when set against all our other areas of operation with elements such as reliable water supplies and leak reduction being of higher importance.

As customers become more informed on the challenge it became a highly emotional subject and starts to become a higher priority. When we tested it in our three areas of business plan focus it was the most important.

Customers chose the high option although a substantial minority opt for no additional investment reflecting a view that lead pipes aren't a significant issue, and it isn't our responsibility to fix the problem. This is particularly a view of the older generations although vulnerable customers are more worried than others about the risks.

When we balance out these tensions overall customers get emotive in their decisions and most customers want to see lead eradicated. We also see a more positive view from those with proximity to children either younger families or grandparents around the plan.

Acceptability of the plan

In the acceptability and affordability testing customers deemed this to be the most important element of our plan with 39% of participants scoring it the highest.

However, in deliberative research the majority of customers were happy with the proposed plan once they better understood about how risk was managed with phosphate dosing as a standard practice.

How this insight has informed our plan

Having reviewed the insight from the engagement we recognise that this is an important issue for our customers and during research was the highest priority of any discretionary elements of our plan.

Our business plan option proposed delivers replacement by 2030 of our highest risk vulnerable customers e.g., schools, nurseries whilst also working on expanding learning through our smart meter roll out to create a database of properties for future business plans.

Through this option we address the majority of our customers views with urgent replacement now whilst gathering the accepted critical data to understand for the future.

C. Customer Impact

This proposal allows those customers most vulnerable to lead contamination to be prioritised and also allows time for better public awareness to be developed on a national level.

Broader societal benefit is achieved by reducing the exposure of young people to lead ingestion. The cost benefits associated with the removal of lead are calculated and presented in the DWI report (DWI,2021). By focusing on schools and nurseries the proposal maximises the benefit by targeting areas where potentially large numbers risk exposure at a single common location.

The bill impact is minimal and presented in table 7 (below).

Table 7: Annual costs and customer bill impacts

2022-23 prices	2025-26	2026-27	2027-28	2028-29	2029-30	AMP8 total
Capex £k	400	400	400	400	400	2000
Opex £k	-	-	-	-	-	-
TOTEX	400	400	400	400	400	400
Bill impacts (average HH bill) (£)	0.04	0.11	0.17	0.23	0.28	
Source: Table CW3, Row 109						

6. ASSURANCE AND BOARD APPROVAL

Production of this supporting document has been undertaken in accordance with internal governance and assurance procedures and processes. Third party assurance has also been provided by Jacobs Global Consultancy.

This comprised initial drafting by a Lead Author, under the direction of an Executive Owner who retains Executive responsibility for the document content including robustness and accuracy.

The document has undergone three stages of internal review and third-party assurance before being signed off by the Board. Internally this has included:

- Executive Owner, and subject matter experts for the Executive Owner,
- Nominated Executive,
- Internal Executive Review Team including the CEO and CFO.

Details of the third-party assurance, including findings/opinion, can be found in PRT15.04.

Supporting cost data has been provided by Trant Engineering Contractors and Atkins (AtkinsRealis Ltd)

The Board has been engaged in the development of the business plan and its content through subject specific discussions at monthly PR24 Steering Committee meetings that have taken place since late 2021. Minutes of relevant meetings are included in PRT15 Board Assurance, Appendix PRT15.01.

7. CONCLUSION

The preferred option balances the statutory limits for lead in drinking water, with Portsmouth Waters ambition to provide its customers with the best possible outcome at an affordable price. The option recognises the potential adverse public health outcomes associated with lead in drinking water, though recognises the current statutory thresholds that allow its presence.

The option for a limited yet focused Universal Lead Replacement Program, provides the best opportunity for gaining better cost certainty around renewals. The proposal also enables additional learning to be gathered to better inform the practicalities associated with a future broader universal replacement program.

The proposal also provides a platform to increase public awareness and gain customer support for the more invasive, costly, and broader program of work contained in the LTDS, and currently planned for the PR29 proposals to begin in AMP9.

The proposal recognises the commentary of the World Health Organisation's JECFA and the European Food Safety Authority regarding the ingestion of lead. Whilst the proposal cannot remove all lead from all of Portsmouth Water's customers, the plan does, by removing the potential for lead to be present in the water supplies at our nurseries and schools, address the most vulnerable in society. The proposal provides the maximum societal benefit at least cost to the customer.

An ODI based on the objectives outlined in Option 3 is expected.

PRT07.07 APPENDIX

PRT07.07 APPENDIX

PRT07.07.01

DWI response to appendix B submission

[Pending]


Portsmouth
Water