

# Benefits of Mains Renewal

## Integrating Innovation

1. Tetra Tech have authored two key UKWIR research projects into the benefits of historic mains renewal (2025 in press), and improving interruptions to supply (25/WM/04/16).
2. TT is uniquely suited to integrate the latest industry findings, from c.40 years of data, into our existing targeting and investment planning tools.
3. TT approaches consider a wide range of benefits to ensure cost effective targeting for short- and long-term network resilience and regulatory compliance

Applying the right techniques in the right locations is key to getting the best outcomes and ensuring long-term benefits.

## Project Offering

Tetra Tech has a long history of delivering mains renewal assessments for both regulatory, business planning, and operational purposes. We assist water companies to develop cost effective DMA targeting.

A typical project can include:

Task	Description
Provide Evidence Base	Supporting data collection, and analysis of pre and post benefits of individual mains renewal schemes. Reviewing multi-year DMA KPI data (e.g., NRR, ALC detection effort, leak repairs, MAL, WQ and ITS).
DMA Targeting Review	Determining target mains within DMAs based on appropriate drivers and the benefit periods for a range of renewal approaches. Reviewing which lengths are experiencing failures. Predictive benefits outcomes using integrated evidence base and network characteristics.
Cost-benefit Analysis	Applying short- and long-term cost savings against initial capital investment to determine payback periods and prioritisation of schemes for AMP delivery plans as well as long term business planning.
Feasibility Assessments and Scheme Development	Engaging stakeholders with application of hydraulic models and development of business case scheme packs.

## Primary Deliverables

1. Prioritised mains renewal schemes, recognising a wide range of benefits.
2. Provision of Ofwat CW20 Water Mains Asset Condition tables and supporting calculations, to show before and after renewal.
3. Evidenced returns on investment to support and secure budgets.
4. Providing tailored output formats to suit investment models and operational teams including interactive PowerBI dashboards.

## Supporting the industry

Tetra Tech can support companies scale up their mains renewal efforts by working in conjunction with in-house teams, through both secondment and project support.

Our practical offering encompasses, but is not limited to:

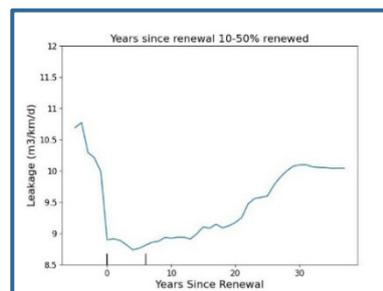
- Data gathering, extraction and QA. We have experience of a range of company systems and software. And have developed models to overcome known data shortfalls, enabling us to design data gathering processes that will allow more explanatory modelling of rehabilitation methods, longer term network deterioration, and network performance forecasting.
- Development of complex KPIs using industry best practices, for example Natural Rates of Rise (NRR), background leakage, Active Leakage Control (ALC) and cost relationships.
- Hydraulic modelling and cost analyses using asset management and investment planning tools.
- Stakeholder engagement, collation and presentation of data, and smooth handover of mains renewal projects for implementation.
- Support decision making, evaluating asset management and investment planning tools, including Copperleaf, and a range of financial metrics such as Net Present Value (NVP).



With our leading through science approach and recent publications on the subject, Tetra Tech RPS is uniquely positioned to provide water companies with in-depth main renewal investment planning. Having incorporated the pending UKWIR project findings into our routine mains renewal assessments, we can support companies to better manage their mains renewal targeting, with increased accuracy, cost effectiveness, and with the widest reaching benefits to satisfy the competing needs of stakeholders, regulators, and customers.

## Maximising data insights

- We perform mains renewal assessments at the DMA level and evaluate KPI impacts where data permits.
- We identify opportunities to improve network efficiency—targeting mains for decommissioning and combining renewal schemes.
- We integrate drivers across programmes (e.g., water quality, leakage, ITS) for coordinated planning.
- UKWIR and nation wide data sets Tetra Tech have developed new methods for asset deterioration modelling that overcome data limitations and gaps. Our UKWIR random forest models superceed traditional GLM modelling and can be readily calibrated to individual water companies.
- We present results in detailed but user-friendly outputs that enables stakeholders to review and compare the benefits of mains renewal schemes retrospectively.



## Summary

The need for better data gathering around underground asset health has been highlighted by UKWIR, OFWAT and the IW.

**Michael Bulter**

Technical Director

Services UK & Netherlands

tetrattech.com

+44 7887 657763

Michael.Bulter@tetrattech.com



**TETRA TECH**