

Brighton & Hove Water Mains Replacement

£15.5 million project to replace 56.6km of Victorian water mains

About 250,000 residents live in the south coast city of Brighton and Hove with tourism key to its economy. The economic contribution of tourism to the local economy was measured at £408 million in 2006, generated by about eight million visitors per annum. 6.5 million of these being day visitors. A large number of those visitors travel to the city by road enjoying events such as the London to Brighton Vintage Car Rally, and the Brighton Festival which runs throughout the month of May. Brighton and Hove is bounded to the north by the Sussex Downs and the South by the English Channel, making it a compact city. The popularity of the city plus the fact that its key road links are already under pressure from heavy traffic flows and its location, traffic management and community liaison have been the key to success of Southern Water's mains replacement programme.



Digging techniques took into consideration the conservation of Regency Buildings in Brighton

photo courtesy Southern Water

The Problem

Much of Brighton & Hove's water mains network is between 120 and 150 years old, with the majority of the cast iron pipes being laid during Queen Victoria's reign. The age of the network meant there was a significant danger of bursts and leaks threatening disruption to customers' services and the transport infrastructure.

In addition to this, a key driver of the company's investment strategy is the avoidance of unplanned interruptions to customers' supplies and from non-disruptive testing of the mains. There is also an ongoing drive to reduce leakage. Southern Water has lowest level of leakage per property of all UK water and sewerage companies. This follows a dedicated campaign by the company to drive down leakage to well below the company's target level of 92 million litres per day to 82 million litres per day, ten million litres a day ahead of its target set by the regulator Ofwat.

The plan

Southern Water scheduled to replace 56.6km of existing water mains infrastructure, including communication pipes, valves and the replacement of 900 fire hydrants with 450 strategically placed super-hydrants.

The area of the city in which the replacement programme was to be undertaken was established using Southern Water intelligence, including road maps of data of burst mains and a series of destructive tests in 58 locations. Sections of main were cut out and metallurgical and destructive testing carried out. This identified the parameters of the working area which was both residential and commercial.

Once the replacement area was established, it was recognised that whilst undertaking the work, the city and Southern Water's customers would benefit from a number of wider improvements, so the company

extended its programme to include the re-design and replacement of the city's fire protection network, giving the community a modern Super Hydrant Network recorded on East Sussex Fire and Rescue Service's GPS system, the accommodation of road reinforcement requirements supporting the city's planned Rapid Transport system; making early provision for future expansion and supply for large projects such as the i360, the proposed observation platform on the seafront, the Brighton Marina re-development and the re-development of the major seafront site for a leisure centre.

Multi-agency working also enabled Southern Water to co-ordinate its work with the gas provider, Southern Gas Networks and the city council which also had its own programme of road improvement works. Often work has been carried out in the same location by all three parties to ensure work is completed in one hit to minimise disruption.

The Start

With customer service at the heart of the project, it was essential that the end-to-end process from conception, through design and construction to completion, should be seamless. The £15.5 million, three-year project began in June 2006, with the main contract awarded to *Clancy Docwra*.

Key to the success of the programme has been the co-ordinated working between identified stakeholders. Four months before work began, a key stakeholder liaison group, comprising representatives from trade and residential associations, the Brighton and Hove Bus and Coach Company, the city council's Highways Department, other utility companies, cycling groups, taxi licensing, Sussex Police and project contractors was established. This group meets monthly at Brighton's Town Hall so the city's transport arteries keep moving and the city's economy is protected while traffic management is in place. Project managers speak to some of the liaison group members on a daily basis, often heading to a location immediately if an issue arises.

In a move unique to the industry, Southern Water also funded the salary of one of Brighton & Hove City Council's traffic management team in recognition of the additional workload to the council's team due to the company's programme and to ensure a close working relationship.

As part of the communication plan for the scheme, the Southern Water project team gave a presentation to MPs in the House of Commons about the project before it began. In addition to this, 18,000 scheme brochures were sent to residents, 19,011 two-week advance warning letters and 23,601 people received fliers about the scheme. Thousands of Frequently Ask Question sheets were also distributed to affected customers to explain details of the work and how to contact the team should there be any customer related issues. To keep in touch with the local community and to say "thank you" for residents' patience the project also undertook to sponsor several key events in the city as part of the "We're Backing Brighton" sponsorship. This included sponsoring the Brighton Festival Children's Parade, Brighton Festival Fringe, Brighton Science Festival and helping thousands of Brighton youngsters to learn to swim in the Southern Water run Learn to Swim scheme.

The scheme - Giving something extra back to the city.

Since work began to replace 56.6km of pipes in June 2006, 33,869.5m of mains have been laid and 4,685m of communication pipe, with 60,000m of excavation being carried out in the city centre.

The work has been carried out mainly using open cut first hit reinstatement because 83 per cent of the properties contractors are digging parallel to have basements or sub-basements which precludes directional drilling and mains bursting. There is also a preponderance of underground utilities in the work area.

A chain digger was used on the A259 Kingsway, the main seafront route, because the road is supported on a series of single skinned brick arches which were originally fishermen's lock-ups and are now clubs and restaurants. Advanced structure and environment surveys were carried out along the route which stated that conventional excavations had the potential to collapse the arches along the key transport route. The company has also been trialling the use of a product called Excell 3ci supplied by GPS, which reduces the testing and commissioning profile. Standard testing and commissioning of mains laid in sticks is approximately four to six days. Using Excell 3ci (coils) sterilisation is negated by the fact that Excell3ci as a bacteriologically inert pipe and the testing is reduced down to a visual test at point of connection only. The product was used in one pedestrianised, narrow street where 80 bespoke independent shops, bistros and outlets rely on continuous supply and all deliveries to that commercially sensitive area.

While working on key routes in the city, Southern Water has commissioned empty buses and run them through traffic management in place to survey the impact on the transport network.

Conclusion

Southern Water is seven months ahead of programme on a project which was due to complete in December 2009.

Note: The Editor & Publishers wish to thank Southern Water for preparing the above article. ■



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