

Abstract

Title: **Water Mains Rehabilitation**

Sub-Title: **An Investigation into the Most Economical Method of
Rehabilitating Water Mains in Ireland.**

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Purpose: This dissertation stemmed from the authors’ experience in pipe laying and Horizontal Directional Drilling projects and interest in trenchless technologies. The purpose of the dissertation is to find the optimum method of rehabilitating water mains in Irish cities considering: construction costs, disruption caused to road users, safety implications to local residents and labourers on site. As the country’s water mains need to be upgraded the findings could be used on future projects.

Methodology: A comprehensive Literature Review was carried out initially followed by the primary research. Participants involved in three water main rehabilitation projects in Irish cities were identified and interviewed using semi-structured interviews. The participants represented three aspects of the project team; councils, contractors and consultants. Three Councils, three consultants and two contractors were interviewed.

Findings: The research found that water mains in Irish cities have surpassed their life expectancy and need to be rehabilitated because of their burst rate, the high volumes of water that are leaking and the health risks that these pipes cause. Trenchless technology in the form of pipe bursting is the most economic way to replace these pipes. Pipe bursting is considerably less expensive to carry out than open cut trenching methods. Difficult ground conditions or nearby services cause less disruption to work, as the existing line of the pipe is used. One off bursts are repaired by open trench. This is a temporary solution until the entire line can be replaced.

Keywords: Open cut, cost, trenchless technology, safety, economic, water mains rehabilitation.