

Reducing Risk for Completing Large Diameter Watermain Condition Assessment Programs - A City of London Case Study

The City of London, Ontario has a population of 380,000 and is located in southwestern Ontario. London is supplied with water from Lake Huron (85%) and Lake Erie (15%). The transmission pipe that carries water to London from Lake Erie is known as the Elgin supply line. The Elgin supply line is 25 kilometers long, constructed of prestressed concrete cylinder pipe (PCCP) and steel. The Elgin line was installed in the 1990 and has experienced few performance issues. Based on its recent installation and no failure history the Elgin line it is expected to be in good condition. The goals for an inspection of the Elgin line is to conduct due diligence, confirm the current risk of failure is low, and inform the pipeline asset management plan going forward.

A key goal for the City of London was identifying the optimized condition assessment inspection approach that would provide the required level of evidence based data to establish the current baseline condition of the pipeline. The City, in selecting its preferred inspection strategy, looked at several key factors including inspection tool resolution, ease of implementation, operational risks of inspection and of course inspection costs.

To achieve the aforementioned goal as well as London's due diligence and planning needs, a progressive inspection protocol was developed that conducted a cost effective survey of the pipeline initially and deployed higher resolution inspection tools based on the results of the initial inspections. This allowed higher cost, higher resolution pipe inspection tools to be targeted where they were needed the most and at locations along the pipeline identified as higher risk by the survey level inspections. The paper will present the protocol development, key project findings, and impact of the condition assessment results on the asset management plan for the Elgin supply line.