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Drink. Water Eng. Sci., 3, 71-77, 2010
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I-WARP: Individual Water mAin Renewal Planner

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Abstract. I-WARP is based upon a nonhomogeneous Poisson approach to model breakage rates in individual water mains. The structural deterioration of water mains and their subsequent failure are affected by many factors, both static (e.g., pipe material, pipe size, age (vintage), soil type) and dynamic (e.g., climate, cathodic protection, pressure zone changes). I-WARP allows for the consideration of both static and dynamic factors in the statistical analysis of historical breakage patterns. This paper describes the mathematical approach and demonstrates its application with the help of a case study. The research project within which I-WARP was developed, was jointly funded by the National Research Council of Canada (NRC), and the Water Research foundation (formerly known as the American Water Works Association Research Foundation – AwwaRF) and supported by water utilities from USA and Canada.

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