

Deterioration Model for Sewer Network Asset Management in Baghdad City (case study Zeppelin line)

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Abstract

Asset management involves efficient planning of economic and technical performance characteristics of infrastructure systems. Managing a sewer network requires various types of activities so the network can be able to achieve a certain level of performance. During the lifetime of the network various components will start to deteriorate leading to bad performance and can damage the infrastructure. The main objective of this research is to develop deterioration models to provide an assessment tool for determining the serviceability of the sewer networks in Baghdad city the Zeppelin line was selected as a case study, as well as to give top management authorities the appropriate decision making. Different modeling techniques were used based on statistical methods such as discriminant, and artificial neural network (ANN) which were used to build the deterioration models. The results of the discriminant model gave correct classification of 68.9% for the condition class of this line. The main significant influencing variables that play an important role in sewer networks were: sewer age, planning, performance and maintenance which is known as the Management function. From ANN model the confusion matrix gave correct classification of 76.7% and MSE 0.128. This study providing a good source of information for future plannin