

## Component-Based Approach in Assessing Sewer Manholes

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**Abstract :** Sewer networks are constructed to protect the communities and the environment from any contact with the sewer mediums. Pipelines, being laterals or sewer mains, and manholes form the huge underground infrastructure in every urban city. Due to the sewer networks importance, the infrastructure asset management field has extensive advancement in condition assessment and rehabilitation decision models. However, most of the focus was devoted to pipelines giving little attention toward manholes condition assessment. In fact, recent studies started to emerge in this area to preserve manholes from any malfunction. Therefore, the main objective of this study is to propose a condition assessment model for sewer manholes. The model divides the manhole into several components and determines the relative importance weight of each component using the Analytic Network Process (ANP) decision-making method. Later, the condition of the manhole is computed by aggregating the condition of each component with its corresponding weight. Accordingly, the proposed assessment model will enable decision-makers to have a final index suggesting the overall condition of the manhole and a backward analysis to check the condition of each component. Consequently, better decisions are made pertinent to maintenance, rehabilitation, and replacement actions.

**Keywords :** Analytic Network Process (ANP), condition assessment, decision-making, manholes

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