Abstract

U.S. Environmental Protection Agency developed a decision-support system, System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN), to evaluate alternative plans for stormwater quality management and flow abatement techniques in urban and developing areas. SUSTAIN provides a public domain tool capable of evaluating the optimal location, type, and cost of stormwater best management practices (BMPs) needed to meet water quality and quantity goals. It is a tool designed to provide critically needed support to watershed practitioners in evaluating stormwater management options based on effectiveness and cost to meet their existing program needs. SUSTAIN is intended for users who have a fundamental understanding of watershed and BMP modeling processes. How SUSTAIN is setup described here using a case study, conducted by actual data from an existing urban watershed. The developed SUSTAIN model was calibrated by observed rainfall and flow data, representing the
The SUSTAIN model was calibrated by observed rainfall and flow data, representing the existing conditions. The SUSTAIN model developed two BMP cost-effectiveness curves for flow volume and pollutant load reductions. A sensitivity analysis was also conducted by varying important BMP implementation specifications.

Keywords
Stormwater management; Decision-support system; Best management practices (BMPs); BMP modeling; Low impact development (LID); Green infrastructure (GI); Design optimization model; Cost-effectiveness

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