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Diffuse pollutant unit loads of various transportation landuses

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ABSTRACT

A four-year monitoring study was conducted to determine the diffuse pollutant unit loads for the six representative transportation landuses (i.e., highway, parking lot, bridge, service area and toll gate) in urban areas in Korea. Pollutant event mean concentrations (EMCs) were calculated from 123 storm events at eleven sites and the average annual rainfall and runoff coefficients were determined to estimate the unit loads using the National Institute of Environmental Research (NIER) method. Apparent differences in the unit load values existed among landuses as explained by the high variability of EMCs for different rainfall events. The study has found that runoff from bridges and highways contained the highest loadings of TSS and COD while service areas are the primary sources of nutrients and metals. The results of this study could be used by the Ministry of Environment (MOE) to separate the unit loads of transportation landuses from the urban area category in the current unit load system. The values obtained are also useful for planning and simulation purposes especially in the total maximum daily load (TMDL) programs and diffuse pollution abatement measures.

Keywords: Diffuse pollution; Event mean concentration; Landuse; Paved area; Transportation; Unit load

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