Effect of drainage controls and BMPs on the flow frequency curve of urban runoff

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Abstract. Urban stormwater controls for peak flow attenuation are currently being used throughout the world. Standard practice typically dictates bringing postdevelopment peak flows down to the predevelopment levels. In most cases the flow controls target low frequency events, while the smaller, higher frequency events are not affected. This study examines the effects of the state-of-practice in flow control on the peak flow frequency curve, and how well the postdevelopment flows are controlled to predevelopment levels. Continuous simulation, using 50 years of hourly rainfall record, was performed on two climactically diverse locales. Detention ponds with a variety of flow control orifices were examined singularly and in conjunction with extended detention best management practices (BMPs). Conclusions are drawn regarding the efficiency of current practice, and recommendations are made regarding the future of urban stormwater control.