



Flood Hydrograph Restoration in Increasingly-urbanized Area Based on Low Elevation Greenbelt

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In increasingly urbanized area, water surface ratio descends and storage capacity of water decreases rapidly associated with lakes, branches, wetlands and floodplains buried. In addition, land surface impermeability enlarges runoff coefficients and runoff velocity. Urban flood, with higher peak discharge, larger volume and shorter concentration time, brings higher risk than rural area.

Flood hydrograph restoration is to restore the flood hydrograph after urbanization by specific strategies, by compensating water surface ratio (WSR) and pervious surface proportion (PSP) for peak attenuation, volume reduction and concentration time increase. This paper presents the equivalent effect of low elevation greenbelt– a type of low impact development practices and WSR, PSP by the model SWMM, based on which, the corresponding compensative water surface ratio (CWSR) and compensative pervious surface proportion (CPSP) were obtained according to the equal peak discharge, volume of flood and concentration time- the three parameters determining the flood hydrograph. Then a relationship was found out between the ratio of low elevation greenbelt and WSR, PSP. Finally, the just ratio of low elevation greenbelt and the amount of rainwater resource utilization can be got by comparison of flood hydrograph with the one before urbanization for the restoration based on the three parameters to reduce effect of urbanization on flood hydrograph.