

A flood study is a comprehensive technical investigation of flood behaviour. It defines the nature of flood risk by providing information on the extent, level and velocity of floodwaters and on the distribution of flood flows across various sections of the floodplain for the full range of flood events up to and including the Probable Maximum Flood.

Major components of a flood study involve determining discharge (hydrologic aspects) and water levels, velocities, etc (hydraulic aspects) for floods of varying severity.

A variety of analytical tools can be used in flood studies, depending on the data available, the flow situation, the nature and extent of development, and the level of detail required. Detailed studies are generally necessary in both urban and rural areas, because knowledge of flood characteristics is required to deal with existing problems, future development and the continuing flood risk.

The flood study also determines hydraulic and hazard categories within the floodplain for the potential range of floods and land use scenarios in order to consider cumulative affects. The manual recognises three hydraulic categories (floodways, flood storage and flood fringe) and two hazard categories (high and low).

Investigating the full range of flood events up to and including the PMF enables changes in the nature and consequences of flooding to be assessed as flood severity increases. These may include increases in velocity and depth, changes in hazard category, the creation of 'islands' (which may be completely inundated in larger events), and the number of properties inundated etc.

Determining appropriate areas for and types of development generally depend upon flood exposure of the land, as defined by hydraulic and hazard categorisation in consideration of isolation.

Finally, climate change which is has the potential to occur due to the enhanced greenhouse effect will affect flood behaviour as sea levels may rise and the pattern of flood producing storms may intensify.

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