



Learn about Flooding

[Flood History](#)

[Flood Types](#)

[Flood and Floodplain Management](#)

[Floods and the Environment](#)

[Links for Students and Teachers](#)

[Links to Resource Material](#)

[Glossary and Abbreviations](#)

[Glossary of Terms](#)

[Abbreviations](#)

You are here: [Home](#) > [Learn about Flooding](#) > [Glossary and Abbreviations](#) > [Glossary of Terms](#)

Glossary of Terms

Average Annual Damage (AAD)

depending on its size (or severity), each flood will cause a different amount of damage to a floodprone area. Large floods will cause more damage than small floods. The average annual damage is the average damage per year that would occur in a particular area from flooding over a very long period of time. In many years there may be no damage, in some years there will be minor damage (caused by small, relatively frequent flood events) and in some years there will be major damage (caused by large, rare flood events). Average annual damage provides the basis for comparing the economic effectiveness of different management measures against floods of all sizes, ie their ability to reduce the AAD.

Annual Exceedance Probability (AEP)

the likelihood of occurrence of a flood of given size or larger occurring in any one year. AEP is expressed as a percentage (%) and may be expressed as the reciprocal of ARI (Average Recurrence Interval). For example, if a peak flood discharge of 500 m³/s has an AEP of 5%, it means that there is a 5% risk (ie, a risk of one-in-20) of a peak flood discharge of 500 m³/s or larger occurring in any one year (see also Average Recurrence Interval).

Australian Height Datum (AHD)

the adopted national height datum that generally relates to height above mean sea level. Elevation is in metres.

Average Recurrence Interval (ARI)

the likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100-years. ARI is related to AEP and Odds of Flooding as follows: ARI in years equals the reciprocal of AEP expressed in terms of chance. For example, a 1% AEP flood has a chance of occurrence in any year of 0.01, and an associated ARI of 100 years. The Odds of Flooding are equal to the ARI in years. Therefore the 100 year ARI flood is also the 100:1 flood (see also Annual Exceedance Probability).

Catchment

the area of land draining to a site. It always relates to a particular location and may include the catchments of tributary streams as well as the main stream.

Consequence of flooding

a qualitative or quantitative description of the outcome of a flood event in terms of loss, injury, disadvantage or gain.

Control Agency

the agency nominated to control the response activities to a specified type of emergency.

Design flood (or Flood Standard)

a flood of known magnitude or average recurrence interval, or a historic event which is selected for land use planning, emergency planning and engineering design purposes. The selection should be based on an understanding of flood behaviour and associated flood risk. It should also take into account the social, economic and ecological consequences associated with floods of different severities. Note that the design flood does not define the maximum extent of land liable to flooding, which is defined by the Probable Maximum Flood (PMF).

Development

the erection of a building or the carrying out of works, or the use of land or of a building or works, or the subdivision of land.

Discharge (Q₅₀)

the rate of flow of water measured in terms of volume (measured in

the rate of flow of water measured in terms of volume (expressed in megalitres (ML) or cubic metres (m³)) over time (measured in days or seconds), *i.e.*, ML/d or m³/s. It is to be distinguished from the speed or velocity of flow which is a measure of how fast the water is moving rather than how much is moving. (Note 1 m³/s = 86.4 ML/d).

Effective Warning Time

the time available for flood-liaible residents to defend their properties, if appropriate, and evacuate themselves and their possessions after having received a warning to do so. Their warning may be disseminated by radio, television, phone, loud hailer, or by word of mouth. The longer the available warning time and the more flood aware the population, the more effective defence and evacuation procedures will be.

Flash Flooding

sudden and unexpected flooding caused by sudden local heavy rainfall or rainfall in another area. Often defined as flooding which occurs within six (6) hours of the rainfall event.

Flood

relatively high streamflow which overtops the natural or artificial banks in any part of a creek, river, estuary, lake, dam or artificial channel.

Flood Awareness

an appreciation of the likely effects of flooding and knowledge of the relevant flood warning, response and evacuation procedures. In communities with a high degree of flood awareness, the response to flood warning is prompt and efficient. In communities with a low degree of flood awareness, flood warnings are liable to be ignored or misunderstood, and residents are often confused about what they should do, when to evacuate, what to take and where it should be taken.

Flood Damage

the tangible and intangible costs of flooding. Tangible costs are quantified in monetary terms (eg, damage to goods and possessions, loss of income or services in the flood aftermath). Intangible damages represent the increased levels of physical, emotional and mental health problems suffered by flood affected people and attributed to a flooding episode. Intangible damages are difficult to quantify in monetary terms.

Flood Fringe

those areas which have been built up or protected and are no longer required as part of the floodplain. It is land which is not required for the free passage and temporary storage of floodwater and could include already developed land, future in-fill development areas or protected areas.

Flood Hazard

potential for loss or damage to property or harm to persons due to flooding.

Flood Management

flood management, in the broad context of emergency management, is the implementation of three clusters of overlapping activities: prevention, response and recovery.

Flood Proofing

a combination of measures incorporated in the design, construction and alteration of individual buildings or structures subject to flooding, to reduce or eliminate flood damages.

FloodSafe

is a whole community program designed to prepare and empower the community with the skills and knowledge to appropriately prepare for, respond to, and recover from floods.

Flood Storage Area

those parts of the floodplain with available water volume which would temporarily store floodwater to be later discharged as the flood recedes. These parts of the floodplain are important for the attenuation of a flood and reduction of its severity during the passage of a flood.

Flood Study

a study to determine and document the nature of flooding for an area. It usually includes a review of history of flooding; and for detailed studies an understanding of flood velocity, depth, frequency and extent, and an understanding of flood damages.

Flood Warning

flood warning involves the timely collection, interpretation and dissemination of flood information before and during a flood event to enable the community to respond effectively to the flood threat. The BoM is responsible for collecting rainfall and stream flow data, operating flood prediction models and preparing and issuing flood warnings to the media, key agencies and other bodies for non-flash flooding situations. The VICSES is responsible for delivering flood warnings to specific municipal council contacts, as well as transmitting any other flood warning identified in the MEMP. Municipal councils are responsible for

	disseminating flood warnings to the local community, local authorities and other local bodies for flash flooding and non-flash flooding situations.
Floodplain	area of land adjacent to a creek, river, estuary, lake, dam or artificial channel which is subject to inundation by the Probable Maximum Flood (PMF).
Floodplain Management	planning and flood impact prevention/minimisation activities, together with related environmental actions. Refer to Flood Management in the Emergency Management Context page of this website for further information.
Flood Management Authority	any Authority with 'direct' or 'delegated' functions for Floodplain Management under Part 10, Division 4 of the Water Act, 1989. The main floodplain management authorities are Melbourne Water and Catchment Management Authorities for their respective areas.
Floodplain Management Measures (or risk treatments)	the full range of techniques available to prevent or reduce flood risk, damage, human suffering and disruption. A measure (or risk treatment) to mitigate the impacts of flooding may include structural and non-structural works such as: a levee, a diversion channel, house raising, flood warning and emergency management arrangements, installation of bridges, channel widening, etc.
Floodplain Management Options	a collection of flood mitigation measures that go together to form an 'option'.
Floodplain Management Plan	the principle means of managing a particular floodplain area. It includes both written and diagrammatic information describing how floodplain land is to be developed and managed to achieve objectives. It can contain all or some of the elements of a flood study, floodplain management study or specific land use decision guidelines (in the context of the Victoria Planning Provisions). The plan describes all adopted measures in detail (may include: structural and non-structural works) to reduce flood risk including cost, cost-benefit ratio, operation and maintenance, social, cultural, environmental planning, construction/management authority.
Floodplain Management Study	the investigation into numerous mitigation measures/options (risk treatments) to reduce flood risk having regard to economic, social, cultural and environmental matters.
Floodway	the channel, stream and that portion of the land liable to flooding necessary to convey the main flow of floodwater and usually comprise the high hazard portion of the floodplain where most development is to be avoided. Floodways are usually areas where a significant volume of water flows during floods and are areas which even if only partially blocked, would cause a significant redistribution of flood flow, or significant increase in flood levels, which in turn may adversely affect other areas. They are often, but not necessarily, the areas of deeper flow or the areas where higher velocities occur.
Freeboard	a factor of safety above design flood levels, typically used in relation to the setting of floor levels, and levee crest heights. It is usually expressed as a height above the design flood level. Freeboard tends to compensate for flood prediction uncertainties and for factors which increase flood levels, such as a wave action, localised hydraulic effects, settlement of levees. It should not be relied upon to provide protection for events larger than the design flood.
Hydraulics	the study of water flow; in particular flow parameters such as water surface height, water depth, duration and velocity across a floodplain and/or river or stream.
Hydrograph	a graph which shows how the discharge (discharge hydrograph) or water level (stage hydrograph) changes with time at any particular location.
Hydrology	the study of the rainfall and runoff process as it relates to the derivation of hydrographs for given floods.
Land Liable to Flooding	the estimated land area that would be inundated by the design flood. This will vary with different design flood magnitudes and will be less than the extent of the Probable Maximum Flood (PMF).

Level of Flood Risk	the combination of likelihood of flooding and consequence of flooding to produce a level of flood risk.
Likelihood of Flooding	a quantitative or qualitative description of the likelihood that a specified event will occur. The likelihood of occurrence of flooding can be measured in terms of Annual Exceedance Probability (AEP) or Average Recurrence Interval (ARI).
Mainstream Flooding	inundation of normally dry land occurring when water overflows the natural or artificial banks of the principal watercourse in a catchment. Mainstream flooding generally excludes watercourses constructed with pipes or artificial channels considered as stormwater channels. Further description can be found in Riverine flooding under the <i>Flood types</i> webpage.
Minor, Moderate and Major Flooding	both the VICSES and BoM use the following definitions in flood warnings to give a general indication of the type of problems expected with a flood: <ul style="list-style-type: none"> ▪ <i>Minor Flooding:</i> causes inconvenience such as closing of minor roads and the submergence of low level bridges. ▪ <i>Moderate Flooding</i> low-lying areas are inundated requiring removal of stock and/or evacuation of some houses. Main traffic bridges may be covered. ▪ <i>Major Flooding:</i> extensive rural areas and/or appreciable urban areas are flooded, with properties and towns isolated.
Municipal Emergency Management Plan	a plan prepared and maintained by each municipal council, under the <i>Emergency Management Act 1986</i> , which identifies the municipal resources available, and how they are to be used, for emergency prevention, response and recovery.
Peak Discharge (Flow)	the maximum discharge occurring during a flood event.
Planning Authority	any Minister or agency that has the power to prepare a planning scheme amendment and may include a municipal council, regional planning authority or public authority.
Prevention	the elimination or reduction of the incidence or severity of emergencies and the mitigation of their effects.
Principle Coordination Agency	the agency nominated to coordinate response and recovery activities of all relevant agencies in a specified type of emergency.
Probability	a quantitative measure of the likelihood of occurrence of an event. It normally reflects the relative frequency of or expectation that an event will occur, and is usually expressed as a percentage, eg the probability of throwing a given number by rolling a dice is 1 in 6, or 16.7%.
Probable Maximum Flood (PMF)	the largest flood that could conceivably occur at a particular location. Generally, it is not physically or financially possible to provide general protection against this event. This flood defines the maximum extent of land liable to flooding. The extent, nature and potential consequences of flooding associated with the PMF event should be assessed in a Flood Study. The PMF event may form the basis of evacuation planning and the identification of refuge areas. Considerations should be given to adopting the PMF event as the design flood event for emergency services planning and for determining the location and floor levels of facilities such as telephone exchanges, police stations and hospitals. The PMF event may also be used to develop land use development guidelines in the floodplain management plan.
Recovery	the assisting of people and communities affected by emergencies to achieve a proper and effective level of functioning.
Response	the combating of emergencies and the provision of rescue and immediate relief services.
Responsible Authority	the specified body/agency which administers and enforces a planning scheme.
Responsible Authority	the remaining level of risk after risk treatment measures have been taken.

Risk	the chance of something happening that will have an impact upon objectives. It is measured in terms of consequence and likelihood.
Risk Analysis	a systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences, in order to establish the level of risk. This is normally undertaken as part of a Flood Study.
Risk Assessment	the process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria.
Risk Identification	the process of determining what can happen, why and how. This is usually carried out as part of a Flood Study.
Risk Management	the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk.
Risk Treatment	selection and implementation of appropriate options for dealing with risk. This is usually carried out following the adoption of a Floodplain Management Plan.
Runoff	the portion of rainfall which actually ends up as streamflow, also known as rainfall excess.
Stormwater Runoff	inundation by local runoff. Stormwater flooding can be caused by local runoff exceeding the capacity of an urban stormwater drainage system or by the backwater effects of mainstream flooding causing the urban stormwater drainage system to overflow. Further description can be found in Urban flooding under <i>Flood types</i> webpage.
Strategic Levee	urban or rural levees generally considered to protect important areas or assets from a broader regional viewpoint. They will generally protect significant urban areas or large rural areas which are mainly highly productive. They could also protect single properties, yet have significant adverse flooding effects on a large number of other properties. They may control potentially undesirable river breakaways or realignments.
Tsunami	low crested waves generated in the oceans by underwater earthquake, volcanic or landslide activity. As tsunamis move into shallow waters, their height can increase dramatically and extensive coastal areas may be subject in inundation and damage.
Victoria Planning Provisions	uniform statewide format for municipal planning schemes which contain a state planning policy framework (including flood policy statements) and a local planning policy framework (including flood zone and overlay provisions).
Waterway	a river, creek, stream or watercourse that may permanently or sometimes flow throughout the year.
Wetland	an area of marsh, fen, peatland or water, whether natural or artificial, permanent, seasonal or cyclic, with water that is static or flowing, fresh, brackish or salt, including mudflats and mangrove areas exposed at low tide, swamps, billabongs and other depressions in floodplains adjacent to streams.
Works	any change to the natural or existing condition or topography of land including the removal, destruction or lopping of trees and removal of vegetation or topsoil (definition from <i>Planning and Environment Act, 1987</i>).