Flooding in Brisbane

An explanation of technical flood terms

We have learnt much about flooding over time. The January 2011 flood and subsequent Queensland Floods Commission of Inquiry, and Brisbane City Council's *Flood Action Plan* acknowledge the importance of providing the best information available to help residents and businesses understand their flood risk and be prepared for flooding.

Council has developed the Flood Awareness Maps and adopted the terms 'high', 'medium', 'low' and 'very low' likelihood areas to help residents and businesses better understand the likelihood of a flood affecting their property.

The Flood Awareness Maps are an awareness tool to provide an indication of the likelihood of a flood occurring from one or more sources: creek, river, overland flow and storm tide.

The maps do not provide information about the depth or speed of flood water. Information on potential depth levels for a property can be found in the FloodWise Property Report at **brisbane.qld.gov.au/planning-building**

The table below is an explanation of the flood extents Council has used to create the **Flood Awareness Maps.**

Flood Awareness Map likelihood area	Percentage chance of a flood occurring in any year (AEP*)	Average period between occurrences of a given flood event (ARI**)	Probability of a flood occurring at least once in 70 years	Definition
High likelihood area	5%	20 years	97%	This is a flood event that is almost certain to occur during a single lifetime (70 years). Over a very long period of time an event of similar size may occur, on average, once every 20 years. Although unusual, an event of this size can occur more frequently. It is likely an event of this size will occur more than once during a single lifetime (70 years). A flood of this size or larger has a 5% chance of occurring in any year.
Medium likelihood area	1%	100 years (Q100^)	50%	This flood event is likely to occur during a single lifetime (70 years). Over a very long period of time an event of similar size may occur, on average, once every 100 years however it may occur more frequently. A flood of this size or larger has a 1% chance of occurring in any year.
Low likelihood area	0.20%	500 years	13%	An unlikely flood event. Over a very long period of time an event of similar size may occur on average once every 500 years. When an event of this size occurs it is considered to be very rare. A flood of this size or larger has a 0.20% chance of occurring in any year.
Very low likelihood area	0.05%	2000 years	3%	A very unlikely flood event. Over a very long period of time an event of similar size may occur on average once every 2000 years. When an event of this size occurs it is considered to be very exceptional. A flood of this size or larger has a 0.05% chance of occurring in any year.

***AEP** Annual Exceedance Probability. The likelihood of a flood of a given size or larger occurring in any year; usually expressed as a percentage.

****ARI** Average Recurrence Interval. The average or expected duration of the period between occurrences of a given flood event; generally expressed as a certain number of years (e.g. 50, 100 etc).

^Q100 A flood event that has the probability of occurring once in every 100 years. Some people incorrectly believe that a flood of this size can only happen once every 100 years. However, the probability of a 1 in 100 year flood occurring is 1% in any year and this probability is the same every year.

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Flood Awareness Map impact area	Technical description (likelihood & hazard***)	Definition
High impact area	H5 & H6 during a 20 year ARI event	In high impact areas, overland flow is almost certain to occur during a single lifetime (70 years). An event of this size or larger has a 5% chance of occurring in any year. The overland flow is generally unsafe for people, vehicles and buildings.
Medium impact area	H3, H4, H5 & H6 during a 50 year ARI event unless classified as high impact	For the majority of medium impact areas, overland flow is very likely to occur during a single lifetime (70 years). An event of this size or larger has a 2% chance of occurring in any year. The overland flow is generally unsafe for people, vehicles and buildings, however these hazards are experienced less frequently than in high impact areas.
Low impact area	H2, H3, H4, H5 & H6 during a 100 year ARI unless classified as high impact or medium impact	For the majority of low impact areas, overland flow is likely to occur during a single lifetime (70 years). An event of this size or larger has a 1% chance of occurring in any year. The overland flow is generally safe for people, vehicles and buildings, however, certain areas can experience greater hazards.

***Hazard Ranges from H1 to H6 as described by Australian Disaster Resilience Guideline 7-3 Flood Hazard (AIDR 2017).

How do we describe the likelihood of a flood occurring?

Understanding the likelihood of different-sized floods occurring is important for managing flood risk. The likelihood of a flood event can be described using a variety of terms, but the preferred method, as recommended by the Queensland Floods Commission of Inquiry, is the Annual Exceedance Probability (AEP). A flood with a 1% AEP has a 1% chance of occurring within any year.

How does Council determine the extent of the flood likelihood areas?

The extents are based on modelling and mapping the run-off that would result from a certain amount of rainfall that could fall across a catchment in a given period of time. For example, the 5% AEP is based on the amount of rainfall that has a 5% chance of occurring in any one year across the catchment.

What factors contribute to floods?

The intensity and duration of rainfall are the most important factors in causing a flood, but there are many other contributing factors. When rain falls on a catchment, the amount of rainwater that reaches the waterways depends on the characteristics of the catchment, particularly its size, shape, land use, surrounding structures and saturation levels of soil. Some rainfall is 'captured' by soil and vegetation, and the remainder enters waterways as overland flow.

What is the difference between the new Flood Awareness Maps and the Flood Overlay Maps?

The purpose of the Flood Overlay Maps is to guide building and development in Brisbane. The Flood Overlay Map shows flood events required for planning and building purposes. The Flood Awareness Map is for residents and businesses to help them understand their flood risk and how they can be prepared to help minimise the impact of flooding on their homes and businesses.

For planning and development purposes, the *Brisbane City Plan 2014* interactive mapping should be used. These maps are available at **brisbane.qld.gov.au/planning-building**

What does the brown hatched area mean on some of the Flood Awareness Maps?

The brown hatching represents specific catchment areas. These areas contribute to overland flow flooding in gullies and flow paths. Further investigation is on-going for these areas and when more accurate data is available Council will update the maps. Until such time the mapping shows the most accurate available overland flow data to Council. Please note all other sources of flooding are not under review.

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