

Flood Commission – Att 1 Detailed Policy Commentary

Understanding Flood Risk

Policy development for disaster management planning and land use planning requires an understanding of flood risk on the Sunshine Coast.

Traditionally, flood risk information has been presented by Sunshine Coast Council as a flood extent map, showing areas affected by flooding, but without giving any guidance on the flood depth, velocity or duration of inundation. Typically, this information has been based on the 1% AEP (also known as Q100, or 1 in 100) flood event likelihood, and has been used widely to inform disaster management and land use planning. The reliance on the 1% Annual Exceedance Probability (AEP) flood for the appreciation of flood risk has been criticised by the Commission and suggested that a broad range of flood sizes needs to be considered in planning. This includes the risk of floods that are less frequent but more severe, and those that will occur more often but with less damaging consequences. Areas to which planning controls are applied should therefore consider the 'residual flood risk' above the define flood event (DFE, used to set building floor levels) and up to the probable maximum flood (PMF, reasonable worst case flood).

The Queensland Reconstruction Authority has recently published measures to support flood plain management in future planning schemes. In these documents they define flood risk as being the product of flood consequence and flood likelihood. This is a sophisticated approach that requires planning evaluation of consequence in the determination of flood risk. It does set the benchmark for future planning scheme appreciation of flood risk and associated zoning.

The Commission has been ambiguous in its definition of flood risk, and technically is referring to flood hazard when making recommendations about flood risk. Flood Hazard is the realization of a physical threat, caused by the combination of depth and velocity.

There are established methods for preparation of flood hazard maps derived from the output of flood models. It is therefore important that the flood models, from which flood hazard maps are derived, are maintained and kept reasonably current, particularly in terms of the hydrological and terrain information that is used in their development.

In order to satisfy the Commission's requirement to consider a broad range of flood sizes, Council will assess a number of flood likelihoods when undertaking the budget endorsed hazard mapping project, including floods more extreme than the 1% AEP.

Keeping flood models current, given rates of development in some areas is challenging. This is a common problem for many councils. On top of this the Bureau of Meteorology occasionally changes design rainfall information that is used by flood models. Whilst this occurs infrequently, a significant change is expected in September 2012.

This change will create a need for a revision to Council's flood models, however it is expected that the need for this revision will not be uniform, and that some catchments may be unaffected.

A further recommendation of the Commission (Recommendation 5.2, Final Report) is that Local Government shows on its public flood maps the areas that will flood, the areas that will not flood and the areas that have yet to be assessed. Council's Riverine Flood Mapping has been developed using a risk based approach that considers population centres and future growth potential. All population centres of significant size have some form of flood mapping available with only less populated rural areas that lack flood mapping.

Council's Riverine Flood Maps may not show flash flood affected areas. Flash flooding is flooding that occurs within a short duration (6hrs) of heavy rainfall. There are typically two types of flash flooding, creek flooding in small steep catchments and flooding where the stormwater drainage

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systems have their capacity exceeded. In Queensland, because of the magnitude of event rainfalls, this second type of flash flooding can occur anywhere, but low lying urban catchments (predominantly in the coastal zone) are particularly prone. This was evidenced in March 2012 along the coastal strip between Maroochydore and Caloundra. Council is currently investigating projects in partnership with Sunshine Coast University to gain a better appreciation of urban flash flood risk areas.

The need for good flood mapping that shows flood risk within the Sunshine Coast region is also a requirement of the insurance industry. The community is not well served by the insurance industry using a different source of flood risk information that may not be accurate. This shared need may present an opportunity for Council to obtain co-funding from the insurance industry for the preparation and maintenance of good flood risk information. This position is recommended given that the Commission is advocating that flood mapping information be made publicly available.

Disaster Management Planning

In line with the Interim Report's Recommendation 3.4, the 2012 Sunshine Coast Local Disaster Management Plan has been updated to ensure that the Plan is consistent with the November 2010 amendments to the *Disaster Management Act 2003*, in that it addresses local risks and is easily used in the event of a disaster.

Council has an important role to play in promoting flood resilience in building design and construction. While council's existing planning schemes are focused largely on flood risk up to the 1% AEP, consideration should also be given to the 'residual' flood risk beyond the 1% AEP. To this end, Council is preparing guidelines to assist Council officers and developers with gaining an understanding of practical options for flood resilient design, relevant to the flood risk associated with current and future climates. The guidelines once finalised can be used to demonstrate acceptable building design and construction outcomes to mitigate flood risk (by controlling the consequences of flooding, particularly property damage and threat to life). This includes design concepts such as having a point of safe harbour above the probable maximum flood, consideration of emergency evacuation points (by air and water), locating electrical and mechanical gear at elevations that minimise the consequences of flooding and use of flood resilient materials in construction.

Land Use Planning

The Commission's Final Report deals at considerable length with the land use planning systems of the State and their application by State and Local Government. It specifically considers:

- particular challenges which flood hazard presents in planning. For instance, problems with storing hazardous materials; the isolation of properties by flooding of low lying access roads; and the need for safe refuge points and evacuation routes.
- role of building controls in minimising damage caused by flooding through the regulation of design and construction and implication of possible changes to the Queensland Development Code to regulating building in flood hazard areas.
- how damage to essential services infrastructure (sewerage, stormwater, electricity, telecommunications, roads and rail) can be minimised in future floods, with particular emphasis on planning and design measures.

The Commission found in land use planning, attention to flood risk State-wide has been ad hoc. The Final Report highlights that Queensland lacks a coherent approach to floodplain management

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and has made a number of recommendations relating to the need for current and comprehensive flood studies and flood mapping. It also calls for flood planning and building controls to be reviewed.

As a result of the Commission's findings, the State is currently reviewing State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide. Model flood planning controls may be developed and introduced as part of the review and are likely to include the requirement for flood overlay maps in planning schemes and assessment criteria for community infrastructure, commercial property, and storage of hazardous materials. The Queensland Government has provided an initial model flood hazard overlay code Temporary SPP2/11 through the Queensland Reconstruction Authority's draft *Planning for Stronger, More Resilient Floodplains* guideline.

The State has also released a new draft part of the Queensland Development Code relating to construction of buildings in flood hazard areas and ways to improve the flood resilience of essential services infrastructure such as sewerage, stormwater drains, electricity and rail networks.

Council was at an advanced state of preparing its new planning scheme when the flood commission reports were released. Staff are now working through the First State Interest Review comments to progress the draft planning scheme to public exhibition stage later this year and are in discussions with State agencies over the State's evolving requirements with respect to flood planning. The new planning scheme will include a flood overlay map using best available flood information to trigger the requirements of a flood overlay code. This includes mapping areas subject to existing flood modelling as well as known historical flood events.

Local government requires best available flood information to impose appropriate planning controls, set minimum floor levels for development of different types, assess development applications and for effective disaster management. The Commission recommends that flood studies be available for urban areas in Queensland (Recommendation 2.4). Across the Sunshine Coast, all urban areas have flood study information for riverine, and where appropriate, storm tide flooding. Much of the balance of the Sunshine Coast has some level of flood study coverage. Gaps and currency are currently being addressed with a view to ensuring that information is current and aligned with best practice. A schedule for revision of flood models has been developed which is intended to be implemented in a manner commensurate with budget available.

Within the Final Flood Commission Report, Recommendation 2.1.2 calls for Councils to prepare floodplain management plans. These plans involve the identification of people and property at risk of flooding, assessment of different levels of flood hazard and consideration of the range of flood mitigation options, such as land use planning and building controls, emergency management plans, community awareness, and structural flood mitigation measures. Council is increasingly looking towards the development of comprehensive approaches to floodplain management in line with best practice. It is therefore recommended that Council plans to undertake a flood plain management plan for each of its major floodplains including Maroochy, Mooloolah and Noosa rivers, once the currency of existing flood models is established.

Buy-back

The Commission recommends that Councils consider a possible buy-back program in areas that are particularly vulnerable to regular flooding.

The Sunshine Coast Council currently has no formal buy back policy and therefore is in danger of treating requests for buy backs on an individual and ad hoc basis. It is recommended that the pros

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and cons of a buy back scheme for a region as large as the Sunshine Coast be very carefully considered and then a clear policy position on buy-backs developed.

It is also recommended that such a policy position ought to be developed on a State-wide basis to ensure consistency, equity and good governance. A submission has been lodged for consideration at the Local Government Association of Queensland Annual Conference (2012) for a state-wide approach on this matter.