



## Queensland Floods Commission of Inquiry

### Request for Submissions – Flood Mapping

Local Government Association of Queensland Ltd

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**QFCI**

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The Local Government Association of Queensland (LGAQ) is the peak body for local government in Queensland. It is a not-for-profit association setup solely to serve councils and their individual needs. LGAQ has been advising, supporting and representing local councils since 1896, allowing them to improve their operations and strengthen relationships with their communities. The LGAQ does this by connecting councils to people and places that count; supporting their drive to innovate and improve service delivery through smart services and sustainable solutions; and delivering them the means to achieve community, professional and political excellence.

## Introduction

On 18 October 2011, the Queensland Floods Commission of Inquiry wrote to the LGAQ inviting submissions in response to questions regarding aspects of flood mapping in Queensland that will inform any potential findings and recommendations.

The following responses are outlined under the associated question outlined in the Commission's letter.

### 1. What area should be covered by a flood map?

There are distinct advantages to completing flood mapping at a range of scales from basin to catchment or sub-catchment.

Consideration should be given to the intended purpose of the flood map when determining what area should be covered. Broad-scale flood mapping at the basin level may be appropriate to identify approximate flood extents and highlight areas where more detailed modelling and mapping should be focused. Conversely, small scale models are appropriate for designing drainage structures or understanding local flood issues in more detail.

In most cases, catchment scale flood mapping would be appropriate for local government purposes. At this scale, the hydrologic and hydraulic behaviour can be understood in sufficient detail for most land-use and emergency planning purposes. If required, catchment scale models can be used to inform smaller scale models.

The mapping also needs to be capable of disaggregation and reproduction on local government (and possibly other) administrative boundaries for use in statutory planning schemes (and possibly other planning or regulatory documents).

### 2. Who should be responsible for flood mapping?

Overall responsibility for delivering and maintaining a flood mapping program should reside at State government level. To the extent that flooding is a State-wide issue affecting land use planning and land management, the State government should take the lead role in providing the tools to manage flood risk.

It is therefore recommended that the State government oversees, coordinates and provides guidelines for flood mapping and associated flood studies and floodplain management, particularly if a State-wide flood management process is adopted (which is supported, and is what the Queensland Reconstruction Authority has been working on). Development of such guidelines should be in full consultation with local government.

If a formal, State-wide flood management process is developed (the flood mapping project by the Queensland Reconstruction Authority being the first step in this process), it is recommended that representatives from State government provide input to the flood mapping, particularly to ensure that the overall floodplain management process is followed correctly. Flood mapping is one of the early stages of the flood management process and assists in the development of a floodplain management plan which comprises a coordinated mix of measures that address the existing, future and residual flood problems.

This is currently the situation in New South Wales where representatives of the Office of Environment and Heritage regularly contribute to flood studies and are responsible for ensuring appropriate standards of investigations and outcomes.

The LGAQ has previously noted the need for a legislative exemption from liability for reasonably-based local government decision making as exists in New South Wales (s733 of New South Wales

Local Government Act 1993) as part of any State-wide flood management process. Such an approach would remove uncertainties in relation to liability and injurious affection.

### **3. Who should perform flood mapping?**

Flood mapping is best completed by appropriately qualified professional engineers and GIS mapping specialists who have the training, skills and background to undertake technical flood studies. Much of the required expertise and human resource capacity to undertake the base mapping and hydrological analysis is located in the private sector.

While the responsibility for undertaking flood mapping and flood studies at the local level (within the State guidelines) can fall to local governments, there is a need for adequate funding and resources to be provided by other spheres of government to enable local governments to fulfil this role.

Land-use planning and flood planning are interrelated and would be managed most efficiently by the same agency. There may be situations where a number of councils (or a Regional Organisation of Councils) could be the most appropriate way to implement flood mapping for a particular area. With effective State coordination (and funding) these opportunities could be identified to achieve an integrated approach.

### **4. Should there be mapping guidelines to guide all flood mapping completed in Queensland?**

As noted above (Q.2), guidelines developed by the State should set both the mapping guidelines and the guidelines for underpinning flood and floodplain management studies. Such flood mapping guidelines are a means of establishing consistency of approach. The guidelines should be established through a process involving relevant State government agencies (e.g. DERM), local governments with relevant experience and expertise and professional bodies (e.g. Engineers Australia).

Mapping guidelines ensure that flood models are of a high and consistent quality and that the outputs (results) are consistent. Local government areas which cross catchment boundaries will be able to apply policy and provide information in a standard manner across the catchment area.

### **5. Who should fund flood mapping?**

High quality flood mapping has the ability to reduce the impact of flooding on lives and property and, correspondingly, the amount of flood recovery assistance required.

It is therefore recommended that the funding for flood mapping be consistent with the funding for flood recovery; a joint agreement between local, State and Federal governments. This three-way funding process is currently used in New South Wales.

What is clear in Queensland, however, is that because of the lack of existing information in more remote areas and the limited resources of associated local governments, an increased level of funding support from the State and Federal governments is required to get mapping of key areas in place. The local government share must only be at a level which is consistent with their resource capacity.

### **6. What amount of data sharing is appropriate?**

The key issue in the release of data by a local government is the potential issue of liability. As noted in the response to Q.2, there is a need for legislative exemption from liability for reasonably-based

local government decision making as exists in New South Wales. The LGAQ considers that such an approach to removing uncertainties in relation to liability and injurious affection is also necessary in Queensland.

There should be full disclosure of flood information between all departments and levels of government (including local, State and Federal). Flood information is required for land use and emergency planning throughout government and accessibility of data should not limit the ability of government to carry out this planning.

The public requires sufficient information to allow them to make informed development and property purchase decisions as well as understand their personal flood risk and how to respond in case of flood. However, too much information can be overwhelming and even counterproductive if the public does not understand how to interpret and use the information.

It is therefore necessary to strike a balance between these competing interests.

For development and property purchase decisions, it is generally sufficient to advise the public of the flood constraints affecting their land. This advice should be issued at time of property purchase and be available at any time. For purposes of community education, a range of flood information should be provided, however it is vital that the information is provided in a format which is meaningful, easy to interpret and readily applied in case of flood.

It is not recommended that information be withheld due to considerations of real estate devaluation. There is little, if any, evidence that publication of flood information negatively affects real estate values. The risk of not providing information to the public far outweighs potential impact to the real estate industry.

Insurance companies and financial institutions should be provided with the same information provided to the public, although a different format may be required. For instance, where flood information available to the public might be provided via online mapping, insurance companies and financial institutions may require digital versions of the same raw data.

## **7. What types of mapping should be available to public?**

Flood information should be made available to the public at the time of property purchase and be readily available in a range of formats at all other times.

Flood information for land purchase or development applications should provide a mixture of modelled and historical flood information, such as 100 year ARI and probable maximum flood levels, flood hazard classification (to describe flood behaviour such as high velocity flow), and maximum historical flood levels. If the lot is affected by a flood-related planning control, this information should also be made available.

For flood education purposes, additional information should be made available. Maps of historical flood extents help to remind the public that large flood events have occurred in the past. Flood markers of historical flood levels are an effective means of raising flood awareness.

The public also needs to be aware of future flood risk and that flooding can be worse than historical floods. Results from design flood events should be made available to the public, particularly those showing maximum depth of inundation and flood hazard (such as high flow areas). In addition, information should be provided that highlights the likely speed of flooding onset. There is a much greater risk to life in flash flooding areas than in slow-rising riverine systems and the distinction should be made clear to the public.

Flood extents associated with various stream gauge heights are valuable during a flood by helping the public understand how predicted flood levels relate to their personal flood risk. This information can be strengthened by highlighting major roads and infrastructure which is likely to be inundated at particular gauge heights.

As previously noted, the issue of liability noted in Q.2 and Q.6 must be addressed.

## **8. What sort of information or education should be provided to public?**

The public should have ready access to a wide range of flood information and be educated in how to interpret and apply this information. Generally, the public has particular difficulty interpreting the likelihood of flooding and how to relate general flood risk to personal flood risk. These issues should be targeted during flood education. Education should address four critical phases of the flooding cycle: non-flood periods; immediately prior to a flood event; during a flood; and the recovery period following a flood.

During non-flood periods, the public should be reminded of the possibility of future floods and be equipped with information to prepare for a flood. In particular, the public should be provided with information about evacuation routes and centres, and how to reduce risk to life and property.

Immediately prior to a flood, the public should be warned of the possible risks and the warnings should be issued through a variety of mediums. The warning should address issues such as time-frames, probability, risks and recommended actions.

During a flood, advice should be issued in clear language and provide the public with directions (rather than recommendations).

The public need to be informed that historic flood levels shown on maps do not necessarily show future flood events and that future events may be higher or lower overall and differently distributed over a given locality. Similarly, there needs to be information that makes it clear that actual flood events will not necessarily match predicted flood levels shown on maps due to differences between actual flood conditions and flood modelling assumptions (e.g. effect of localised rainfall, floodway obstructions, tidal effects).

There are also misconceptions that need to be addressed such as: the Q100 (100 year ARI) is not the PMF; the Q100 may not necessarily equate to the largest known flood; and that just because a property is clear of the Q100 line does not mean that the property will never be inundated by flood water. Education is also needed on how to apply measurements using AHD and how to apply flood heights in AHD at a particular gauge to individual properties.

## **9. What sort of information should be available to insurance companies or financial institutions?**

Comment was made on this issue in the response to Q.6.

The same information that is made available to the public should also be made available to insurance companies and financial institutions.

However, the range of flood events provided to these commercial entities might be greater. Insurance companies and financial institutions may need a wide range of flood events for statistical purposes. Insurance companies and financial institutions are also likely to require flood mapping in a raw, digital format for use in databases. The availability of this additional information must be further considered both in regards to how the information is used and what the potential resource impacts are for local governments.

Local governments need the ability to charge commercial entities for costs incurred in meeting specific data requests.

As previously noted, the issue of liability noted in Q.2 and Q.6 must also be addressed.