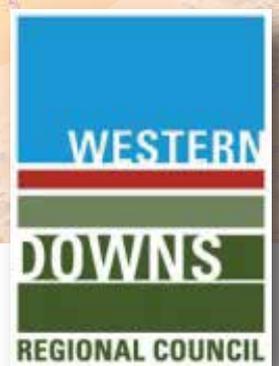
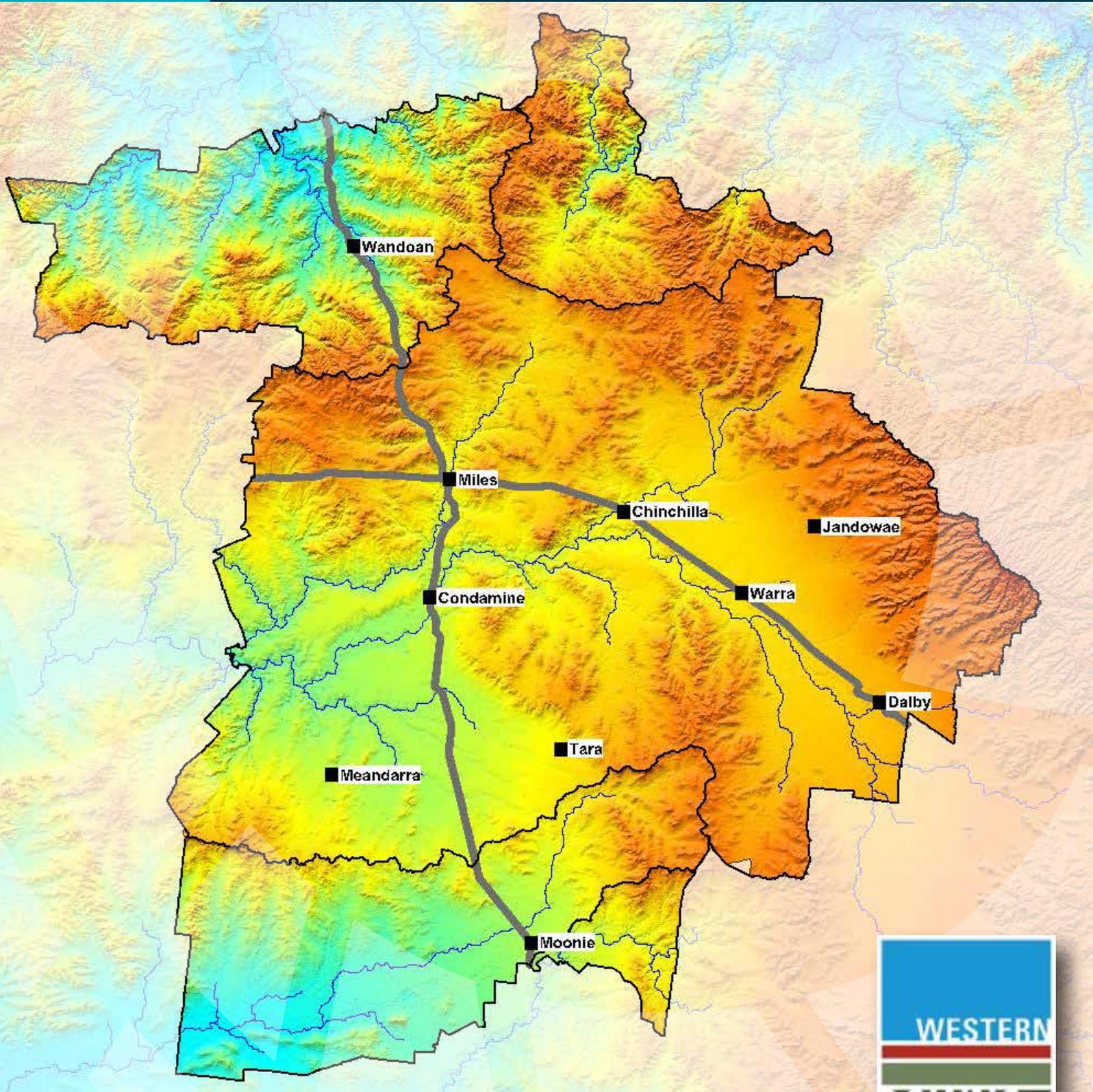


# Overview



# Western Downs Floodplain Risk Management Study

## OVERVIEW

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Prepared By: BMT WBM Pty Ltd (Member of the BMT group of companies)

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<b>Title :</b>	Western Downs Regional Council Floodplain Risk Management Study
<b>Author :</b>	Barry Rodgers / Jo Tinnion
<b>Synopsis :</b>	The Floodplain Risk Management Study sets out Council's preferred plan for sustainable floodplain management over the next 25 years.

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# 1 INTRODUCTION

This report is the first of several which make up the Western Downs Regional Council Floodplain Risk Management Study (FRMS) as shown by the document map presented in Figure 1-1. This FRMS has been prepared in close consultation with Western Downs Regional Council (Council) and sets out a framework for Council to proactively manage flood risk within the region. The FRMS is intended to be formally revised every five years taking into account new data and guidance in the emerging field of flood risk management.



Figure 1-1 FRMS Document Overview

## 1.1 What is Flood Risk Management?

The overarching goal of flood risk management is to increase the resilience of communities to the risks associated with flooding. Risks are considered proactively for both existing communities and areas that may be developed in future.

Determining how flood risk should be managed for any given area depends on both the severity of the risk and the resources available to deal with that risk. The risk should be viewed with the understanding that floods are naturally occurring phenomena. It is the human interaction with the floodplain and the associated exposure to flood hazard which creates the flood risk. Eliminating completely the risk to communities is therefore not viable unless the communities themselves are moved out of the floodplain. Therefore the focus is on managing the risk and this study is set within this context.

Flood risk is viewed as a combination of probability (likelihood) of a flood happening and the consequences of a flood to communities.



Furthermore, for any given flood the consequences will vary between different communities and different groups within the same community. Ultimately, individuals perceive and respond to risk in different ways. Flood risk management aims to balance the needs of the community in order to establish an acceptable level of risk.



### 1.1.1 Floodplain Management Measures

Management of floods in order to mitigate (reduce) risk can be achieved using a number of techniques or measures. Historically these have been limited to structural flood mitigation measures whereby, for example, an attempt is made to control the river or creek through engineered features such as levees or dams.

Current best practise in floodplain management recognises that other, non-structural, measures play a key role in reducing flood risk and increasing resilience in communities. These measures include elements of planning, flood warning and community awareness and can often be used in combination with structural flood mitigation measures to develop an integrated set of management measures which form part of an overall flood risk management scheme.

Throughout this report the floodplain management measures have been grouped into three general categories:

- Structural Flood Mitigation Measures;
- Land use and Development Control Measures; and
- Emergency Planning and Response Measures.

These general categories are summarised below.

### **Structural Flood Mitigation Measures**

Structural flood mitigation measures can be very effective at reducing flood risk but often at significant cost, not just monetary but also to the environment. They are designed to alter the behaviour of the flood itself by reducing flood levels and/or velocities or by excluding floodwaters from areas at risk. They typically change the size and duration of a flood. Structural flood mitigation can include levees, detention basins, channel improvements and drainage systems.

It should be recognised however that there is always potential for the occurrence of a larger flood than that for which the structure was designed for. Failure of a structure may also result in catastrophic consequences which may be significantly worse than those for if the structure was not there. Structural flood mitigation measures may also install a false sense of security into communities and encourage further development in an area that remains at residual risk from flooding. They can also increase flood levels and flood risk in other areas. Therefore it is important that they are hydraulically assessed and appropriately designed and considered in an integrated manner with other management measures.

### **Land Use and Development Control Measures**

Effective land use planning is amongst the most important non-structural measures for managing flood risk. These measures can be implemented through planning policy and can provide a risk based framework to guide appropriate development within the floodplain. The risk based approach distributes land use within the floodplain, directing development away from areas at highest risk in order to minimise the adverse consequences of flooding. Measures can include zoning controls and voluntary house purchase/raising of properties in hazardous areas of the floodplain. The distribution of flood prone land into appropriate land uses can help to ensure that future flood damages are minimised. Implementation of such land use controls needs to recognise that in certain locations there may be overriding economic, social or environmental reasons where such policies need to be relaxed. This should generally be the exception rather than the rule.

Land use planning measures can be used in tandem with development and building controls to ensure appropriate conditions are attached to development within more hazardous zones of the floodplain. Such conditions may require, for example, finished floor levels of buildings to be above a pre-determined level.

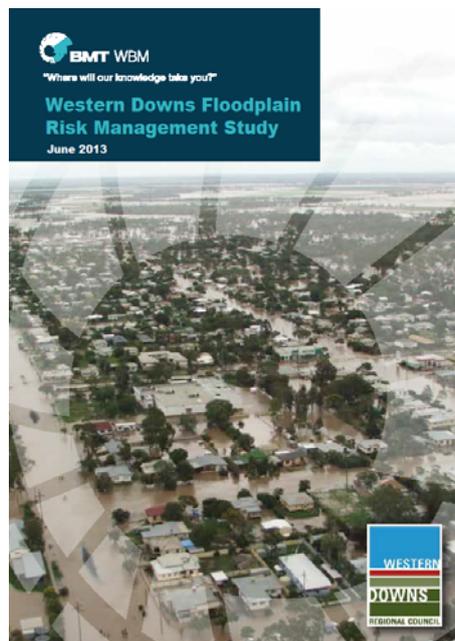
### **Emergency Planning and Response Measures**

Emergency Planning and Response is concerned with the preparedness of the community for flooding and the actions and coordination of emergency services both during and in the aftermath of flood events. It includes flood forecasting and warning, evacuation plans and recovery plans.

Flood awareness and preparedness is an important factor influencing successful flood response. A flood aware community is better able to understand flood warnings, how warnings relate to their particular situation and how to respond appropriately during flood events. Flood information and education is therefore an important aspect when aiming to increase community resilience to flooding.

## 1.2 Floodplain Risk Management Study and Plan

The Flood Plain Risk Management Study (FRMS) assesses various combinations of floodplain management measures for communities within Western Downs and recommends management schemes based on these combinations. A second report termed the Floodplain Risk Management Plan (FRMP) summarises the schemes and sets out their implementation in a framework document which will guide floodplain risk management within the region.





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