



# Holbrook

## Floodplain Risk Management Study & Plan

**A Floodplain Risk Management Study and Plan (the Study) is currently being prepared for Holbrook. This is the next phase of the Floodplain Management Process after completion of the Culcairn, Henty and Holbrook Flood Studies (the Flood Study) last year. Greater Hume Shire Council (Council) has appointed WMAwater to undertake this Study.**

### The Floodplain Management Process

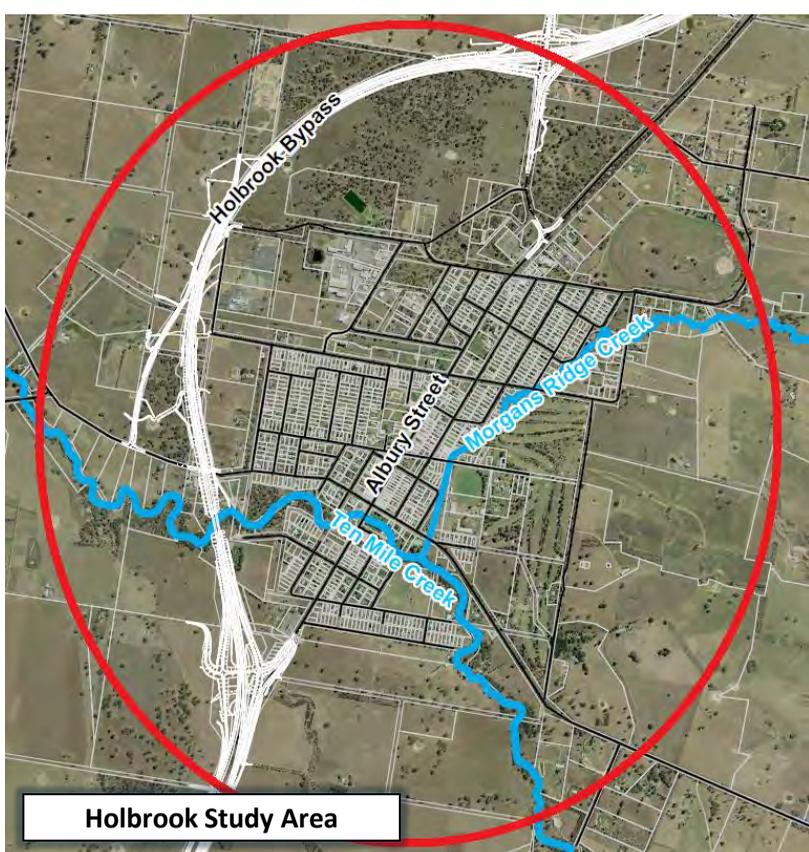
The State Government’s Flood Policy aims to reduce the impacts of flooding and flood liability on individual owners and occupiers, and to reduce private and public losses resulting from flooding. Under the Policy, local government is responsible for managing flood liable land.

- The Policy encourages the development of:
- solutions to existing flood problems in developed areas and
  - strategies for ensuring that new development is compatible with the flood hazard and does not create additional flooding problems in existing developed areas.

The State Government’s Flood Policy provides for technical and financial support for a number of floodplain management activities. Funding for this study was provided from the State Government’s Flood Risk Management Program and Greater Hume Shire Council.



### Holbrook Study Area and Flood History



Flooding in Holbrook is primarily due to Ten Mile and Morgan’s Ridge Creeks. Ten Mile Creek flows east-west through Holbrook at the southern end of the town and has a catchment area of approximately 140 km<sup>2</sup> at Albury Street. In the north-east of Holbrook, Morgan’s Ridge Creek (11 km<sup>2</sup> catchment) flows south-west before joining Ten Mile Creek 300 m upstream of the Albury Street Bridge. Both of these creeks have historically been responsible for over floor flooding in Holbrook.

During October 2010 and again in March 2012, record flooding occurred in Holbrook, particularly on Ten Mile Creek. The larger of these two events, the October 2010 flood, inundated approximately 50 homes and businesses over floor level and caused significant damage throughout the town. The Flood Study estimated that this event had an Average Recurrence Interval (ARI) between 100 and 200 years.

Morgan’s Ridge Creek also experienced flooding during both these events however flooding during the 1970’s and 80’s was greater than in either of the two recent flood events.

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An important aspect of this Study is devising various flood mitigation options that will reduce flood risk, liability and damage. WMAwater engineers have come up with various mitigation measures, however often flood affected communities also will have various ideas of how flood affectation can be reduced. This is where we need your help. Please complete the attached questionnaire and come to our community workshop day at Holbrook.

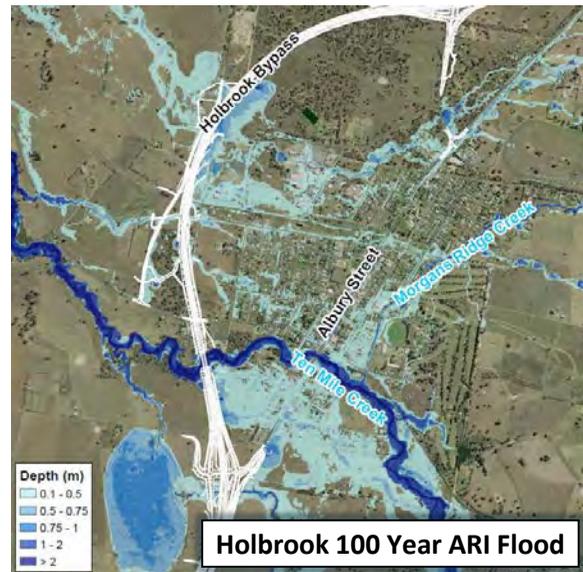
### Come along to our Community Workshop

When: **Tuesday 14<sup>th</sup> October at 2:00 pm to 8:00 pm**

Where: **Holbrook Community Library  
Bowler Street, Holbrook**

### Flood Mitigation through Computer Modelling

The Flood Study aimed at understanding and determining the nature and extent of flood affectation in Holbrook. As part of this work, detailed computer models were established to model flood behaviour in the Study Area. One of the benefits of these models is that various flood mitigation measures can be tested to determine what works will provide the greatest mitigating effect whilst insuring that there are no negative impacts such as increased flood levels in the surrounding areas.



**Holbrook 100 Year ARI Flood**

### What mitigation works can help reduce flood risks?

#### Flood Mitigation Works

Various types of flood mitigation works are used to reduce flood affectation. Not all mitigation measures are appropriate for all areas. For example, levees are often used to exclude flood water due to riverine or creek flooding from flood prone areas, however these will often increase flood levels and affectation outside of the levee as well as inadvertently causing flooding inside to the levee as well. Accordingly, mitigation works must be undertaken using the Flood Study Models.

#### Levees

Levees are used to exclude flood water from flood prone areas. A well known example of this is at Wagga Wagga where a levee protects the Wagga CBD from Murrumbidgee River flooding. Levees are often constructed of earth embankments such as that protecting the Holbrook RS Club from Morgan's Ridge Creek flooding.

#### Culverts and Bridges

Culverts and bridges allow water to flow under roads, train tracks or similar obstructions. The use of bridges and culverts helps reduce upstream flood levels until the capacity of the structure is exceeded. In some instances it may be beneficial to increase the conveyance capacity of existing culverts to decrease upstream water levels, however the downstream impacts of such works must also be taken into account.

#### Drains and Channels

Drains and channels assist in the removal of floodwaters by increasing the rate at which flow is dispersed from a flood affected area. These structures are often situated in existing flow paths and are generally either earthen or concrete lined. A good example of a drainage channel is Morgan's Ridge Creek which in its upper reaches is a natural creek which then is transformed into an earthen channel and finally into a concrete drain before it discharges into Ten Mile Creek.



Example earth bank levee

stopping local runoff from entering the creek, a detailed investigation of all proposed flood

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In some instances, flood mitigation works such as those mentioned on the previous page may not be suitable for mitigation of flood risk and affectation. In such situations flood risk management measures may be better suited to reduce risk to life and property.

### Property Modification Measures

#### Voluntary Purchase

Voluntary Purchase (VP) involves the acquisition of flood affected properties situated in high hazard areas, and demolition of the residence to remove it from the floodplain. The New South Wales State Government recognises VP as an effective floodplain risk management measure for existing properties in areas where:

- There are highly hazardous flood conditions from riverine or overland flooding and the principal objective is to remove people living in these properties and reduce the risk to life of residents and potential rescuers.
- A property is located within a floodway and the removal of a building may be part of a floodway clearance program that aims to reduce significant impacts on flood behaviour elsewhere in the floodplain by enabling the floodway to more effectively perform its flow conveyance function.
- Purchase of a property enables other flood mitigation works (such as channel improvements or levee construction) to be implemented because the property will impede construction or may be adversely affected by the works with impacts not able to be offset.



VP is an effective strategy where it is impractical or uneconomic to mitigate high flood hazard to an existing property and it is more appropriate to cease occupation to meet the above objectives. Government funding for VP schemes can be made available through the Floodplain Management Program as long as a number of complying criteria are met.

**It is important to note that all properties involved in a VP scheme are valued by Valuer General of NSW and the property is assessed as though it is flood unencumbered. As part of this Study we are interested in determining the level of community interest in such a scheme. The questionnaire attached to this newsletter provides you with an opportunity to tell us if you would be willing to be involved in the VP process. Please note that the VP process is entirely voluntary and anyone involved in the scheme can withdraw at anytime. Also worth noting, where such a scheme is implemented it is done on a priority basis and such schemes can take many years to be carried out in full.**

#### Voluntary House Raising

Voluntary House Raising (VHR) has been widely used throughout NSW to eliminate or significantly reduce flooding of habitable floors particularly in lower hazard flood areas, albeit in limited overall numbers. VHR is recognised as an effective floodplain risk management measure for both riverine and overland flood conditions. It is generally undertaken:



- To reduce the frequency of exposure to flood damage of the house and its contents – reducing the frequency of household disruption, associated trauma and anxiety, and clean up after floods may also have social benefits.
- As a compensatory measure where flood mitigation works adversely affect a house which is generally considered part of the mitigation work rather than a separate VHR scheme.

VHR can be an effective strategy for existing properties in low flood hazard areas where mitigation works to reduce flood risk to properties are impractical or uneconomic. It should be part of an overall floodplain risk management strategy for an area rather than a stand-alone option as it does not deal with issues such as risk to life.

More information on the NSW Government's VP and VHR schemes can be obtained from:

<http://www.environment.nsw.gov.au/resources/water/coasts/20130055fmpvolpurchase.pdf>

<http://www.environment.nsw.gov.au/resources/water/coasts/20130056fmpvolraising.pdf>



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Community involvement in the Study is important. The Holbrook Floodplain Management Committee includes members from Council, Office of Environment and Heritage, the State Emergency Services and local residents who will oversee this Study. A questionnaire is included with this newsletter so that your views and ideas can be included in this Study. You are also invited to attend a community workshop where we welcome you to provide input into potential flood management options in more detail as well as to discuss the Study.

### How can I have my say?

A questionnaire is enclosed with this newsletter. Please complete this and return to the FREEPOST address in the envelope provided.

Please make sure that all surveys are returned before 24<sup>th</sup> October 2014 or they may not be counted.

If you have additional information you would like to make available for the Study, or further comments, please attach to your questionnaire response or alternatively email to the contacts below.

The easiest and best way to be heard is to attend the community workshop at Holbrook Library on Tuesday 14<sup>th</sup> October 2014 between 2 pm and 8 pm.

Feedback from the community will be analysed and considered in this Floodplain Risk Management Study.

The hydraulic models constructed in the Flood Study will be used to assess the impacts of the potential mitigation options raised by the community in more detail and determine if these mitigation ideas are commercially viable. Modelling will also ensure that there are no negative impacts in the surrounding areas. The community workshop will be run in conjunction with this newsletter/questionnaire to provide opportunity for the community to ask questions in an open forum and to assist WMAwater engineers in determining potential mitigation works.

### Contacts

If you would like to know more or have any information on flooding which would assist in this Study, please complete the relevant sections on the questionnaire and return using the provided 'postage paid' envelope. Additional information and comment can be attached to the questionnaire when you return it or provided to the contacts below.



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Please complete this questionnaire and return to the FREEPOST address in the envelope provided. Please make sure that all surveys are returned before 24<sup>th</sup> October 2014 or they may not be counted.

### 1. Your Details (Please note your contact details are optional, will be held confidential and will only be used to contact you for more information regarding this study)

Name:

Address:

Telephone:

Email:

### 2. Can we contact you directly for more information?

Yes  No

If 'Yes', what method of contact would you prefer? e.g. telephone, Email etc.

### 3. Do you think something should be done to reduce flood risk in Holbrook?

Yes  No  Don't Know

### 4. Is the flood risk you are referring to due to:

Ten Mile Creek  Morgan's Ridge Creek  Other

If 'Other', please detail the source of flooding.

### 5. At what frequency would you consider flooding "acceptable"?

Annually  5 years  10 years  50 years  100 years  Never



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### 6. If eligible, would you be interested in a Voluntary Purchase scheme?

 Yes No

### 7. If eligible, would you be interested in a Voluntary House Raising scheme?

 Yes No

Please note that Questions 6. and 7. are only to obtain an indication of the level of community interest in these schemes. Please feel free to comment on the VP and VHR schemes below.

### 8. Have you got any ideas to reduce flood risk at Holbrook?

 Yes No

If 'Yes' can you please describe the location of where you think flood risk could be improved (please provide nearest crossroads or known landmarks or alternatively display on the attached map on page 8).

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### Please use this page to describe how flood risk may be reduced?

Please use as many details as possible to describe how flood risk may be reduced. Note that you might find the attached map over page useful to aid in your description.

Empty response area for describing flood risk reduction measures.

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Holbrook 100 year ARI flood depth map – Please indicate how you would reduce flood risk?

