



Clarence Valley Structural Mitigation Works Review

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Issued for Adoption



Executive Summary

BMT was commissioned by Clarence Valley Council (Council) to undertake the 'Clarence Valley Structural Mitigation Works Review'. The overarching aim was to assess the relative flood risk mitigation benefits of existing structural flood risk mitigation works on the Lower Clarence floodplain.

The project has been delivered with financial support from the New South Wales State Floodplain Management Program and has been undertaken in accordance with the principles of the NSW Government's Flood Prone Land Policy.

A flood risk asset database was created which includes the following:

- Groups assets by type, for example levees, drains and floodgates.
- Classification of assets into tiers based on their perceived flood risk mitigation capability.
- Grouping of collections of assets into schemes, which typically correspond to localised areas of the floodplain. In total, 33 separate schemes were defined in this way.

The database was underpinned by a comprehensive set of GIS files provided by Council which provided the locations and various pieces of information about Council's floodplain assets within their ownership. BMT also undertook site visits with Council engineers to see a number of Council owned assets.

An assessment was then performed on the schemes to score and rank them based on their relative flood risk mitigation benefits. The core of the assessment involved the development of a multi criteria assessment (MCA) matrix. The matrix included criteria and targeted issues encompassing different aspects of flood risk and environmental considerations. The criteria and targeted issues were developed with input from Council and agreed to by the Clarence Valley Floodplain Risk Management Committee (the 'Committee').

The criteria and targeted issues were then weighted in recognition that some issues are of greater importance to the assessment than others. The allocated weightings were also developed with input and agreement from the Committee.

In order to allocate a score against each issue, a number of techniques were developed and utilised. Most of these were based on GIS queries of available spatial datasets and model results. This was to ensure that the scoring approach was both transparent and applied in a consistent manner across the various schemes. Where additional information was available, such as anecdotal information or through more in-depth analysis, then the scoring was adjusted in line with the available evidence.

The flood model developed for Council (and last updated in 2013) was updated for this assessment and used to provide input when scoring a number of criteria. The model updates include significant advancements in the modelling software and incorporation of recent large developments within the floodplain including the Pacific Highway upgrade and the new crossing of the Clarence River at Grafton. Where available, updated surveys of various levees were also included. Once updated, a validation of the model was undertaken to ensure that it was suitable for use in the assessment.

Three pilot studies were initially undertaken for schemes at Goodwood Island, Taloumbi and Illuka. This was to ensure that the MCA matrix and scoring techniques were functioning as intended. The results of the pilot studies were provided to the Committee and following minor adjustments and refinements, the process was endorsed.

The scoring process was then undertaken for all 33 schemes resulting in a single overall score per scheme. This allowed the schemes to be ranked.

Table 1 presents the overall scores and rankings by scheme. A summary sheet has been created for each scheme showing a more detailed breakdown of scores by criteria and targeted issues. Overall, the schemes providing protection to more populated urban areas were ranked at or near the top of the table, as would be expected. The ranking of predominantly rural schemes was typically heavily influenced by the presence of dwellings or evacuation considerations.

Table 1 Ranking of Schemes by Overall Score

Scheme	Score (out of 5)	Rank (out of 33)
Grafton	4.25	1
South Grafton	4.11	2
Ulmarra	3.68	3
Maclean	3.43	4
Swan Creek	3.40	5
Sportsmans Creek	3.18	6
Goodwood Island	3.09	7
Illuka	2.78	8
Camp Creek	2.63	9
Kings Creek – Lower Kings	2.59	10
Harwood Island	2.43	11
Alumy Creek	2.39	12
Colletts Island	2.10	13
Taloumbi	2.09	14
Lawrence	1.95	15
Warrenghah Island	1.69	16
Woombah	1.60	17
Palmers Island	1.49	18
Micalo Channel	1.33	19
Ashby Mainland & Island	1.20	20
Gilletts Ridge	1.16	21
Shark Creek	1.10	22
Chatsworth Island	1.07	23
Palmers Channel	0.77	24
Great Marlow	0.25	=25
Cowper	0.25	=25
Tucabia	0.25	=25

Scheme	Score (out of 5)	Rank (out of 33)
Lower Coldstream	0.25	=25
Poverty Creek	0.25	=25
Brushgrove	0.25	=25
Micalo	0.25	=25
Yamba	0.25	=25
Southgate	0.25	=25

The MCA process provides a high level means to assess many complex issues in a consistent and transparent manner, using available information combined with flood modelling outputs. It has allowed a first pass at ranking schemes for their flood risk benefits and leaves an audit trail so that the results can be repeated, revised or updated if new information becomes available.

It is recommended that the outcomes of this assessment are used to support Council when fulfilling its obligations under the NSW Floodplain Development. It is emphasised however that all assets are likely to provide a purpose which may not directly be for flood risk mitigation and will therefore be of value for other reasons.



The Hon Gabrielle Upton MP
 Minister for the Environment
 Minister for Local Government
 Minister for Heritage

MD19/230

Mr Chris Gulaptis MP
 Parliamentary Secretary for Regional Planning
 Member for Clarence
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 GRAFTON NSW 2460

By email: clarence@parliament.nsw.gov.au

Dear Mr Gulaptis *Chris*

Thank you for your representations on behalf of Councillor Jim Simmons, Mayor of Clarence Valley Council, about the Floodplain Management Program Maintenance Grants. Cr Simmons also wrote to me directly, and I appreciate the time you have both taken to raise Council's concerns with me.

I note you have also written to the Deputy Premier, the Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business, the Hon John Barilaro MP, and the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry, the Hon Niall Blair MLC.

I am advised that the NSW Government has been funding flood mitigation works since the late 1950s. Early infrastructure works had relatively high ongoing maintenance costs, and so at that time the government offered some councils funding for the maintenance of the infrastructure. This offer was made as a transitional arrangement and there was no intent to index this amount as time passed. Clarence Valley Council's annual payment falls under this arrangement.

Local government is responsible for the maintenance of flood mitigation structures constructed since 1984 under the NSW Government's Floodplain Management Program. This is because the maintenance requirements of modern infrastructure is less onerous than older infrastructure.

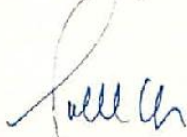
The NSW Government, through the Office of Environment and Heritage, will continue to look to deliver the best opportunities for all councils across NSW to deal with floodplain management issues. However, at present there is no intention to increase the funding allocation for maintenance of infrastructure.

Local councils can apply for funding to assist their understanding of flood risk and to implement works identified in Floodplain Risk Management Studies and Plans. The next round of the Floodplain Management Program will soon open for applications. I would encourage Clarence Valley Council to apply to this program.

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Cr Simmons is welcome to contact Geoff Hudson, A/Director Grants, Office of Environment and Heritage on 8837 6098, or geoff.hudson@environment.nsw.gov.au, with any further questions he may have about these matters.

Yours sincerely



Gabrielle Upton MP
Minister for the Environment
Minister for Local Government
Minister for Heritage

10/2/19

cc: The Hon John Barilaro MP, Deputy Premier, Minister for Regional New South Wales, Minister for Skills, and Minister for Small Business.

The Hon Niall Blair MLC, the Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry.