QPRC
Queanbeyan-Palerang Regional Council

Ordinary Meeting of Council

SUPPLEMENTARY AGENDA

23 November 2016

Commencing at 5:30pm

Council Chambers
10 Majara Street, Bungendore

****On-site Inspections****

List any inspections or indicate "Nil"

S DETERMINATION REPORTS

LIST OF ATTACHMENTS –
(Copies available from General Manager's Office on request)

Open Attachments

Item S.1 Captains Flat Floodplain Risk Management Study and Plan

Attachment 1 *Captains Flat Floodplain Risk Management Plan - Recommended Options (Under Separate Cover)*

Attachment 2 *Floodplain Management Program Guidelines for voluntary purchase schemes (Under Separate Cover)*

Attachment 4 *Draft Captains Flat Floodplain Risk Management Study (Cardno, October 2016) (Under Separate Cover)*

Attachment 5 *Draft Captains Flat Floodplain Risk Management Plan (Cardno, October 2016) (Under Separate Cover)*

Closed Attachments

Item S.1 Captains Flat Floodplain Risk Management Study and Plan

Attachment 3 *Attachment C1 (Confidential) - Captains Flat Preliminary Voluntary Purchase Sites (Under Separate Cover)*

DETERMINATION REPORTS

S.1 Captains Flat Floodplain Risk Management Study and Plan (Ref: C16182047; Author: Bascomb/Bascomb)

Summary

This report provides Council with the opportunity to adopt the Captains Flat Floodplain Risk Management Study and Captains Flat Floodplain Risk Management Plan. It contains background information on the process undertaken to date, a summary of the community consultation undertaken as part of this process and recommends that the Study and Plan be adopted in their current form, but that the option for voluntary purchase only be partially implemented at this time.

Recommendation

That Council

1. **adopt the Captains Flat Floodplain Risk Management Study and Captains Flat Floodplain Risk Management Plan as attached;**

2. **thank the Captains Flat Floodplain Risk Management Committee, particularly the community members, for their efforts in assisting to produce the Floodplain Risk Management Plan;**

3. **pursue funding through the NSW Office of Environment and Heritage Floodplain Risk Management grants process to undertake options identified as High and Medium in the Plan on the basis that Council will provide one-third of the costs in its 2017-18 budget;**

4. **pursue funding through the NSW Office of Environment and Heritage Floodplain Risk Management grants process to undertake the voluntary purchase scoping study on the basis that Council will provide one-third of the costs in its 2017-18 budget;**

5. **note the voluntary purchase program is an option of last resort and refrain from implementing any program until community attitudes are more supportive; and**

6. **make provision for the construction of the recommended projects in future budgets when funding can be provided by the State and Council under the NSW Office of Environment and Heritage Floodplain Risk Management grants program.**

Background

Captains Flat was founded as a mining settlement in the late 19th century and experienced rapid, relatively uncontrolled development during the mining boom years of the early to mid-20th century. As a result of this development, residences and businesses were developed in areas of the town that are subject to flooding from the local watercourses.

Captains Flat, therefore, has a history of mainstream flooding. Four drainage systems – the Molonglo River, Keatings Collapse, Kerrs Creek and an un-named creek referred to as Town Creek – converge at the village. They all form on higher uphill slopes generally to the south and east of Captains Flat on the western side of the Great Dividing Range. Keatings Collapse and Kerrs Creeks join the Molonglo River within the town boundaries and just downstream of the 820 ML dam that supplies the town with its water supply. Town Creek joins the Molonglo River immediately downstream of the village. The combined catchment area is approximately 45 km^2.

The village has experienced a number of flood events over the years with the worst, according to current residents, occurring in December 2010. Over a dozen houses and businesses at Captains Flat were inundated by floodwaters on 9 December 2010 when about 100mm of rainfall fell in 24 hours in the catchment above the town. The peak of the flood occurred in the early hours of the morning in the lower areas of Foxlow Street when flow from the Molonglo River (after passing over the top of the town water supply dam) and floodwater from Keatings Collapse combined to put up to a metre of water through some buildings. The impact of flooding in the town was exacerbated by blockage of key drainage paths by flood debris. Sheet flow off the hills on each side above Foxlow Street caused nuisance flooding of properties in the northern and central sections of the built-up areas of the town. Some flooding was also experienced along Kerrs Creek.

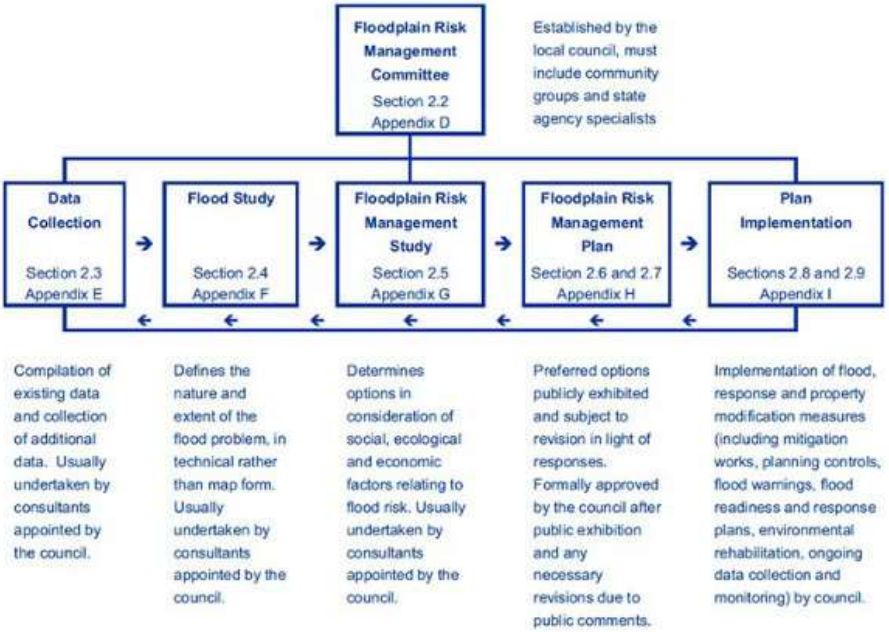
There was little warning of the rising waters in the lower parts of the town and some residents were lucky to escape unhurt. The emergency management plan was activated by the SES. Substantial damage was caused to property and contents with significant financial loss experienced by the owners of these properties.

Daily rainfall records document far larger rainfall events in the 20's, 40's and 70's. Major flooding is on record as having occurred in 2012, 1991, 1988, 1978 and 1945.

Floodplain Risk Management Process

The NSW Government has developed the Flood Prone Land Policy, the Floodplain Risk Management Process and the Floodplain Development Manual to guide management of floodplains. The aim of the Policy is to safely manage existing communities at risk of flooding through the implementation of appropriate controls and emergency management activities while allowing appropriate development of new land within floodplains. New development is required to consider the effects of the development on existing development, the future risk to new communities and emergency management for the new community. New development will only be permitted where risks to existing and future communities can be effectively managed.

To better protect existing communities and to assess future development opportunities, Council is encouraged to undertake floodplain risk management studies for at-risk communities. The process, outlined in the figure below, involves the study of the catchment, the watercourses, the communities and emergency responses. The process ultimately recommends a series of structural works (such as levee banks), planning controls (such as minimum floor levels) and emergency response procedures (such as evacuation routes) that, when implemented, will reduce risk to the existing community to a level acceptable to the community.



(From NSW Floodplain Development Manual)

Council is currently towards the end of the process to development a floodplain risk management study and plan. Background information on the Captains Flat Flood Study and Floodplain Risk Management Committee is discussed following.

Captains Flat Floodplain Risk Management Committee

The Captains Flat Floodplain Risk Management Committee (FRMC) was formed to guide the development of both the flood study and the subsequent floodplain risk management project.

The FRMC is made up of the following members:

- Elected members of Council
- Community Members
- Council staff from Infrastructure Planning and Planning
- NSW Office of Environment and Heritage (OEH)
- NSW State Emergency Service (SES)

Representatives from OEH sit on the Committee as a non-voting member and provide technical assistance and expertise.

Captains Flat Flood Study

Following the 2010 flood event, the former Palerang Council commissioned Cardno to undertake a Flood Study for Captains Flat (FS). The FS considered the following design flood events:

- 20% Annual Exceedance Probability (AEP);
- 10% AEP;
- 5% AEP;
- 2% AEP;
- 1% AEP;
- 0.5% AEP and,
- the Probable Maximum Flood (PMF – the theoretical largest possible flood)

A 1% AEP indicates that there is a 1% chance of a flood of that magnitude (or greater) in any one year. AEP has recently replaced the use of annual recurrence intervals (ARI).

Each event was modelled for a range of durations ranging from the 30min event up to the 24 hour event in order to determine critical durations for the study area. Peak water levels, depth and velocities, as well as provisional flood hazards and hydraulic categories were determined for each AEP event.

The Captains Flat Flood Study identified flood prone land as generally located within floodways, with extremely limited flood fringe and flood storage areas. A large portion of the southern area of the town is directly affected by flooding, with flood impacts on properties in events as low as the 20% AEP event. Flooding also occurs within the town in a short time frame, with peak flooding occurring between 1 and 9 hours (after the start of the storm event) in the 1% AEP event. The study indicated the December 2010 event was between a 20% and 10% AEP event. Specifically, the FS found the following about flooding behaviour:

Molonglo River

- Is the major flowpath in the study area
- Has floodwater flows of up to 3.8m deep and 5m/s in the 1% AEP event, with greater depths experienced in the PMF
- Is a high hazard flow path
- In events as small as the 20% AEP event, breaks its banks on the western side and inundates a number of private lots
- Causes road overtopping, particularly in the vicinity of the Foxlow Street Bridge

Keatings Collapse

- In events larger than the 2% AEP event, flows overtop Jerangle Road due to insufficient capacity of the pipe. This flow proceeds north and east along Foxlow Street before crossing through a number of properties into the Molonglo River.
- Overtopping flows are typically less than 0.3m even in large events.
- Flow within Keatings Collapse is high hazard; however, the overtopping flows are low hazard. The high hazard regions only affect bushland or open space.

Kerrs Creek

- In events larger than the 20% AEP event, the flow overtops Foxlow Street where it transitions to the piped reach.
- A portion of the flow breaks out of the creek at the pedestrian bridge at Willow Road. This flow moves west along Kurrajong Street, crosses Foxlow Street, before draining into the Molonglo River.
- The flowpath results in flooding of residential lots between Kurrajong Street and Wattle Avenue. The creek flow and Kurrajong Street flows are high hazard, though all property flooding is low hazard.

Town Creek

- The flowpath inundates a number of properties adjacent to it. However, the flows are shallow and slow moving, and the flowpath is classified as low hazard.

Preliminary assessments were undertaken on road and property flooding in order to provide initial flood intelligence to Council and the SES prior to the comprehensive Floodplain Risk Management Study being undertaken.

As part of the FS, the community raised some options that they would like investigated as flood mitigation strategies. Three of these, clearing of the Molonglo River, regrading of the Molonglo River, and utilising Captains Flat Dam as a flood control structure, were assessed for the 10% AEP and 1% AEP to provide some early indication of their feasibility.

Both the clearing and regrading options reduced levels upstream of the Foxlow Street Bridge in both the 10% and 1% AEP events. Analysis of Captains Flat Dam showed it was not effective for controlling flood waters, even if empty at the start of the storm, as floodwaters filled the dam 3 hours before the peak of the flood event, so there was no change in peak flood levels or extents.

The Captains Flat Flood Study was adopted by the former Palerang Council at the October 2013 Ordinary Council meeting (Resolution 254/2013).

Captains Flat Floodplain Risk Management Study

Following the Flood Study, Council applied for and were successful in obtaining a grant to undertake the next two phases of the Floodplain Risk Management process – developing a floodplain risk management study and floodplain risk management plan. This process is now in its final stages and is ready for submission to Council for consideration. The work has been undertaken by Cardno under the direction of the Captains Flat FRMC.

The draft Captains Flat Floodplain Risk Management Study (FRMS) and Floodplain Risk Management Plan (FRMP) are provided under separate cover. The following sections contain relevant information about the process, findings and implications of the FRMS. Although discussed separately in this report, the FRMS and FRMP were produced concurrently.

Objectives

The objectives of the FRMS are to:

- Review the current Captains Flat Flood Study (Cardno, August 2013) and update the model to reflect current catchment conditions;
- Review Council's existing environmental planning policies and instruments including Council's long term planning strategies for the study area, particularly in the light of the potential impact of climate change & in terms of consistency with the principles of the Floodplain Development Manual (2005).
- Identify residential flood planning levels and flood planning area
- Identify works, measures and restrictions aimed at reducing the social, environmental and economic impacts of flooding and the losses caused by flooding on development and the community, both existing and future, over the full range of potential flood events and taking into account the potential impacts of climate change.
- Assess the effectiveness of these works and measures for reducing the effects of flooding on the community and development, both existing and future and taking into account the potential impacts of climate change;
- Consider whether the proposed works and measures might produce adverse effects (environmental, social, economic, or flooding) in the floodplain and whether they can be minimised;
- In terms of the Department of Planning Circular PS 07-003 and "Guideline on Development Controls on Low Flood Risk Areas – Floodplain Development Manual", determine if and where exceptional circumstance are appropriate for flood related development controls on residential development on land outside the residential flood planning area.
- In consultation with the NSW SES, review the local flood plan, identify deficiencies in information and address the issues identified in the DECCW Guideline "NSW SES Requirements from the FRM Process."
- Examine the present flood warning system, community flood awareness and emergency response measures in the context of the NSW State Emergency Service's developments and disaster planning requirements.
- Examine ways in which the river and floodplain environment may be enhanced without having a detrimental effect on flooding; and,
- Identify modifications required to current policies in the light of investigations.

Community Consultation – Stage 1

An initial round of community consultation was undertaken in December 2014. An information cover letter and questionnaire were distributed to property owners within the Captains Flat township. The cover letter provided an outline of the floodplain risk management process and the objectives of the study. The questionnaire sought information about historical flooding events and flood awareness within the community.

S.1 Captains Flat Floodplain Risk Management Study and Plan (Ref: C16182047; Author: Bascomb/Bascomb) (Continued)

The cover letter and questionnaire were delivered to approximately 320 property owners within the catchment area. Surveys were also hand-delivered to properties to ensure that renters were given an opportunity to respond. The cover letter also provided a link to a study website that provided additional information and the option to complete the survey online.

From the distribution, 25 responses were received, representing a return of approximately 8%. This rate of return was similar to that of the previous Flood Study, and is typical for these types of surveys.

The questionnaire asked respondents to give a ranking of 1 – 5 to a variety of potential flood mitigation and management options, with one being most preferred and five not being preferred. By taking an average of the marks given to each option, the options were ranked based on resident preference. Overall results are shown in the following figure, which is reproduced from the FRMS report.

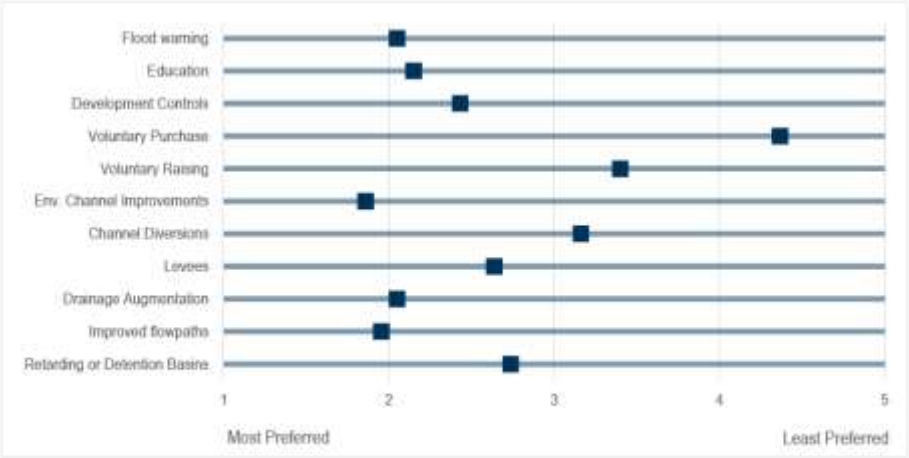


Figure 4-4: Community Preferred Flood Mitigation Options

The majority of options were generally supported, with average scores of 2 – 3. Two options were highly supported with average scores less than 2 – environmental channel improvements and improved flowpaths.

There was little support for voluntary purchase, with an average score of greater than 4. Voluntary raising and channel diversions were also ranked relatively poorly.

Overall, the community showed a preference for non-structural mitigation options.

S.1 Captains Flat Floodplain Risk Management Study and Plan (Ref: C16182047; Author: Bascomb/Bascomb) (Continued)

Community Consultation – Stage 2

Following the initial consultation, Cardno undertook an assessment of preliminary options. A community workshop was held at the Captains Flat Community Hall on Wednesday 8th April 2015. The workshop was undertaken to discuss the study with the community, and in particular to consult with the community on the preliminary assessment of potential mitigation options. Comment and feedback was sought on the suitability of these options, and also whether the community had additional options to be assessed. The preliminary options are shown in Table 13-2. Key comments and feedback from the community workshops included:

- Revetment/armouring of any reworked creek is required
- The environmental and aesthetic appeal of the creeks must be considered in the works
- Vegetation and debris management was strongly supported
- Strong agreement to examine culvert blockage and capacity in the project
- Sheet flow off surrounding hills should be considered
- There is a build-up of silt at the inlet to Kerrs Creek culverts
- Concerns about easement along back of properties along Foxlow St near Town Creek
- Vegetation removal must include removal of poisoned willows
- Residents should be encouraged to take care of their own properties to protect the wider town
- Loss of land has occurred as a result of erosion in Kerrs Creek

No additional options were suggested for assessment by the community.

Flood Mitigation Options Assessment

The following options were considered as part of the preliminary options assessment. Of these, options shown in grey were not considered in the final options assessment for a variety of reasons discussed in the FRMS report. Options carried forward were assessed against the following criteria:

- Capital cost
- Recurrent cost
- Net Present Value
- Reduction in annual average damages
- Benefit-cost ratio
- Reduction in risk to property
- Reduction in risk to life
- Reduction in social disruption
- Community support
- Council support
- Environmental impacts and benefits

Scores for each option are shown in the table below.

Option ID	Modification Category	Description	Score
F1	Flood Modification	Drainage upgrade	12
F2	Flood Modification	Structure upgrade	9
F3	Flood Modification	Kerrs Creek Detention Basin	
F4	Flood Modification	Vegetation Management	1
F5	Flood Modification	Channel works	13
F6	Flood Modification	Use of Captains Flat Dam as detention structure	
F7	Flood Modification	Lot raising along Foxlow Street	
P1	Property Modification	Voluntary Purchase	11
P2	Property Modification	Building and Development Controls	2
P3	Property Modification	Flood Proofing Guidelines	3
P4	Property Modification	House raising	
P5	Property Modification	House rebuilding	
P6	Property Modification	Land swap	
P7	Property Modification	Council redevelopment	
EM1	Emergency Response Modification	Information transfer to the SES	4
EM2	Emergency Response Modification	Flood warning system	5
EM3	Emergency Response Modification	Public awareness and education	6
EM4	Emergency Response Modification	Flood warning signs	9
EM5	Emergency Response Modification	Upgrade Miners Road	7
DC1	Data Collection Strategy	Data collection following a flood event	8

Other FRMS Findings

In addition to the assessment of the options, the FRMS expanded on a number of issues following on from the Flood Study. A summary of these findings is provided below.

- Overfloor flooding commences in events as common as the 10% AEP event and sharply increases in floods greater in magnitude than 2% AEP event
- 28 residential properties and 9 commercial properties experience overfloor flooding in the 1% AEP event
- 102 properties (92 residential, 10 commercial) are affected by overfloor flooding in the PMF event
- The PMF is a significantly larger flood than other events and is approximately 2.5m greater in depth than the 1% AEP event in some locations
- There is little to no flood warning time available within the study area
- Flooding in Captains Flat poses a significant risk to life
- Access roads within the town are cut in 20% AEP and greater events
- Flooding within Captains Flat is characterised as flash flooding meaning there is little opportunity to undertake evacuation due to the short timeframe between the beginning of the rainfall event and the arrival of floodwaters

Figures 5-1 and 5-2 show the true hazard for the 1% AEP and PMF events.

Captains Flat Floodplain Risk Management Plan

The findings of the FRMS were used to develop the FRMP. The following section contains a summary of the FRMP, which is provided under separate cover.

Objectives

The objectives of the FRMP are to:

- Reduce the flood hazard and risk to people and property in the existing community and to ensure future development is controlled in a manner consistent with the flood hazard and risk;
- Reduce private and public losses due to flooding;
- Protect and where possible enhance the river and floodplain environment;
- Be consistent with the objectives of relevant State policies;
- Ensure that the draft floodplain risk management plan is fully integrated with Council's plans and proposals, meets Council's obligations under the Local Government Act, 1993 and has the support of the local community;
- Ensure proposed actions are sustainable in social, environmental, ecological and economic terms; and,
- Establish a program for implementation.

Community Consultation – Stage 3

Following the completion of the assessment of options, and development of the draft FRMP, community consultation was again undertaken. The consultation included a public exhibition workshop held at the Captains Flat Community Hall on Wednesday 2nd March 2016. The workshop presented the draft outcomes and recommendations from the study to the community and offered the community a further opportunity to provide feedback on the FRMP prior to finalisation.

The majority of residents expressed general support for the draft Plan, however reservation was again expressed about voluntary purchase. Key comments from the discussion are outlined below:

- Voluntary purchase may sterilise the southern portion of the town. It was explained that this was the intent of that measure as it is a high risk area within the town
- Voluntary purchase would only apply to residential properties, leaving the commercial areas isolated, particularly so for the pre-school
- An early warning system needs to be a priority to increase the time for residents to evacuate
- Maintenance of stormwater infrastructure needs to be improved and be undertaken more frequently. It was explained that stormwater infrastructure is generally sufficient only for minor events and that no maintenance schedule will prevent flooding in this area

S.1 Captains Flat Floodplain Risk Management Study and Plan (Ref: C16182047; Author: Bascomb/Bascomb) (Continued)

Two written submissions were made during the public exhibition period. The first submission was made by the Queanbeyan & District Preschool Association. Their submission comprised the following comments:

- If voluntary purchase proceeds, the preschool would be left in an isolated area leading to an increase in overall risk, not just flood risk.
- If the other blocks in the area were to be bought by council and reclassified we would have concerns as to who would be responsible for the upkeep of the area around the Preschool.
- If the preschool was further isolated, it may prove less of an attraction for parents to bring their children to our service and we would suffer in regards to our operational viability (as it stands we currently only operate two days per week).
- Evacuation times need to be made as long as possible to allow safe evacuation of the centre. They have suggested an evacuation alert time of one to two hours would be appropriate.
- As Foxlow Street Bridge goes under in many flood events, the only evacuation route is Miners Road. This road has safety issues and should be improved to provide an enhanced evacuation route
- Vegetation management should be undertaken to reduce debris obstructions along the Molonglo River.
- Raising and repairing Foxlow Bridge should be considered.

With regard to the raising of Foxlow Street Bridge, this option was not feasible as it would also require raising of significant lengths of Jerangle Road and Foxlow Street to tie into the raised road that is not feasible due to existing access requirements.

The second submission made was by Captains Flat Public School. The points made in their submission were:

- The Captains Flat Public School has been identified in the draft Plan as a potential flood refuge location
- The current principal is supportive of this arrangement provided suitable arrangements for issues related to Workplace Health and Safety, site access, site management and required equipment and supplies can be satisfactorily agreed with Council and the SES.

The Regional SES Headquarters also expressed their concern about 'shelter in place' provisions.

Following consultation, two minor changes were made to the draft FRMP. The first involved changing the priority of the early warning system to High and the second was the inclusion of upgrade and sealing of Miners Road to provide an alternate evacuation route.

S.1 Captains Flat Floodplain Risk Management Study and Plan (Ref: C16182047; Author: Bascomb/Bascomb) (Continued)

FRMP Recommended Options and Implementation Plan

The options recommended in the FRMP and their implementation order are detailed below and are shown on Attachment 1. Summary costs are provided in the second table below.

ID	Description	Estimated Capital Cost	Estimated Recurring Cost	Funding Sources /Responsibility	Priority for Implementation
F4	Vegetation Management	$780,000	$15,000	Council / Community	High
P2	Building and Development Controls	$15,000	$500	Council	High
P3	Flood Proofing Guidelines	$15,000	$1,000	Council	High
EM1	Information transfer to the SES	$3,000	$0	Council / SES	High
EM2	Flood warning system	$250,000	$1,500	Council / OEH	High
EM3	Public awareness and education	$20,000	$2,000	Council / SES	Medium
EM5	Upgrade Miners Road	$500,000	$2,500	Council / Community	Medium
DC1	Data collection following a flood event	$5,000	$3,000	Council / SES	Medium
F2	Structure upgrade	$1,088,400	$15,000	Council / OEH	Medium
EM4	Flood warning signs	$5,000	$200	Council	Medium
P1	Voluntary Purchase	$4,800,000	$0	Council / OEH	Low

	Estimated Capital Cost	Estimated Recurring Cost
Total Cost of Implementing the Plan (All options)	$7,481,400	$40,200
Total Cost of Implementing the Plan (High and Medium options only)	$2,681,400	$40,200
Total Cost of Implementing the Plan (High options only)	$1,063,000	$17,500
Total Cost of Implementing the Plan (Structural options only)	$1,868,400	$30,000
Total Cost of Implementing the Plan (Non-structural options only)	$5,613,000	$10,200
Total Cost of Implementing the Plan (Non-structural options only, excl. VP)	$813,000	$10,200

The draft FRMP retains voluntary purchase as a recommended option as the risk to life was considered by the FRMC to be of such significance that it would be inappropriate for the FRMC to remove the option without presenting the matter to Council for their consideration. Further discussion to assist Council in determining if voluntary purchase will be included in the adopted plan is contained in the following section.

Voluntary Purchase

Voluntary purchase (VP) programs identified in a floodplain risk management plan are governed by the OEH document "Floodplain Management Program Guidelines for voluntary purchase schemes". The complete guideline is contained in Attachment 2, and a summary is provided in the following sections.

Properties identified for further investigation for VP are shown on Attachment C1 (confidential). This attachment is confidential at this time as no conversations have been held with property owners and it has not yet been determined if VP will be included in the adopted FRMP.

VP Objectives

VP is a recognised and 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 can be an effective strategy where it is impractical or uneconomic to mitigate the high flood hazard to an existing property and it is more appropriate to cease occupation to meet the above objectives. It is likely to be a measure that complements an overall floodplain risk management strategy for an area rather than an option that reduces flood risk on its own.

VP Eligibility

The following criteria need to be met for a property within a VP scheme to be eligible for funding:

1. No other feasible flood risk management options are available to address the risk to life at the property

2. The property is a residential property and is not vacant land

3. The buildings were approved and constructed prior to 1986 when the original Floodplain Development Manual was gazetted by the State Government

4. The individual property is identified in an adopted FRMP

5. The VP scheme that has been fully defined, scoped and prioritised

6. The property is located:

    a. within high hazard areas where there is a significant risk to life for occupants and those who may have to evacuate or rescue them

    b. within a floodway where the removal of the house may be part of a floodway clearance program

    c. within the footprint of a proposed flood mitigation measure or where a flood mitigation measure may result in a significant increase in flood risk to a house that cannot be protected

7. Two- or multi-storey properties may be eligible for funding despite the upper floors not being directly affected by over-floor flooding

VP Costs

The following costs are eligible for funding under a VP program:

- actual purchase price, where this is within the range of a valuation undertaken in accordance with Valuer General requirements to provide a range that is considered fair and equitable in relation to market value
- legal costs of the council
- vendor's legal costs for the sale of the property
- valuation fees
- demolition costs that are incurred within six months of purchase

Costs which are not eligible for funding are:

- solatium (compensation amount payable (over the valuation price) to cover the non-financial inconvenience of relocation)
- removalist costs
- fees associated with any purchase of a new property by the VP vendor
- administrative costs
- retrospective works (with the exception of valuation fees)
- vendor legal costs for purchase of a new property
- costs of maintaining the land after purchase
- costs associated with rezoning the land
- house and land costs outside the range of the valuation outlined above, although the council may purchase the property for more than the maximum valuation

Why is VP being considered for Captains Flat?

The following factors have led to the inclusion of VP in the draft FRMP:

- Floodwater depth – floodwaters reach up to 1.0m deep during the 1% AEP event and over 3.5m deep during the PMF event
- Velocity – floodwater velocity in the preliminary investigation zone is high (up to 5.0m/s in some areas)
- Warning time – warning time is limited due to the short time between rainfall and floodwaters arriving in the town
- Rate of rise – water rises rapidly in the investigation zone and will isolate properties in a very short time after the appearance of floodwater
- Isolation – the community of Captains Flat is located approximately 40km from both Bungendore and Queanbeyan, therefore it is unlikely that any outside assistance will be available to assist during emergencies in Captains Flat
- Loss of emergency egress – in conjunction with the previous point, the road between Bungendore/Queanbeyan and Captains Flat will likely be inundated in a number of locations, further exacerbating emergency response times

These factors combined to give a high true hazard for the VP investigation area and there is a significant risk to life in the identified area. There are no feasible structural mitigation measures that can be implemented in this area, and the only way to ensure that the risk to life is reduced is by removing or reducing residential properties in the investigation area.

Social Impact on the Captains Flat Community

There is little doubt that implementation of a VP program in any location in Captains Flat would have serious social and community impacts. Being a small community, the removal of any housing stock will have a relatively large impact on the social and cultural capital of the town. Community consultation has shown that there is limited community support for VP.

In addition, there is generally little free land available in Captains Flat, meaning that affected house-owners would either move from Captains Flat to other areas, or compete with other potential purchasers for existing housing stock within the town. Either of these options may be beyond the financial capacity of some affected homeowners, notwithstanding the higher sale price they could expect under a voluntary purchase program.

Within the preliminary VP zone, not all buildings will be eligible for buyback. This is because some have been constructed after 1986 (and are therefore excluded from the program) and some are business/commercial properties (and are therefore also excluded). This will potentially mean that even after the conclusion of a VP program some buildings will remain within the identified preliminary zone. Properties in the preliminary investigation zone are shown in the confidential Attachment C1.

Preliminary Investigation

A preliminary investigation of eligible properties was undertaken using construction dates. Of the 14 properties identified within the VP investigation area, four have buildings constructed after 1986. A further two properties are ineligible as they are commercial properties. Therefore the VP program will likely only apply to seven properties (with an additional one property requiring further investigation to determine construction date. Eligible properties are shown in confidential Attachment C1.

Impact on Council Finances

The draft FRMP contains an estimated cost for the VP program of $4.8m. Of this, Council would be liable for one third of the costs (subject to the funding requirements above) which is around $1.6m. Note these costs are for the VP program only and do not include on-going management costs if the land was to be retained in Council ownership. Other costs are discussed in the Financial Implications section later in this report.

Legal implications of including or excluding VP from the FRMP

Under clause 733 of the *Local Government Act 1993,* local Councils are indemnified from liability with respect to flood liable land. Councils are required to have acted in 'good faith' to retain the indemnity. Clause 733(4) specifies that Councils are taken to have acted in 'good faith' if they have acted in accordance with a relevant manual, of which the 2005 NSW Floodplain Development Manual (FDM) is one. Crucially, this indemnity applies to actions a Council decides to take or omit.

The FRMS and FRMP have been prepared in accordance with the FDM. The FDM requires Councils to consider the social, economic, ecological and cultural costs and benefits of any particular proposal within the floodplain risk management process. The final decision on what is to be included or excluded from a floodplain risk management plan is a decision of Council to make. Therefore, irrespective of whether VP is included or omitted from the adopted plan, Council will be indemnified from actions resulting from this decision under the 'good faith' provisions.

Additional assets acquired

Based on the preliminary VP assessment, adoption and implementation of a VP program will result in Council becoming the eventual owner of approximately 8,500m^2 of land. This land would need to be converted to a suitable land zoning (i.e. one that prevents construction of structures on the land) and would need to be either held by Council for public benefit or on-sold.

General discussion

Undoubtedly the adoption of the FRMS and FRMP in its current form will cause a level of concern within the community. The removal of seven properties from the housing stock through voluntary purchase will have short-term negative social and cultural impacts. Nor will a voluntary purchase program guarantee the removal of all buildings within the highest risk areas. Omission of the voluntary purchase program from the final FRMP would be a reasonable, defensible decision in light of the community concerns.

Notwithstanding the above, the risk to life in certain areas of Captains Flat means that voluntary purchase must be considered. In the longer term, voluntary purchase may mean improved social and cultural outcomes through a reduction in potential loss of life and financial loss. Discussions between staff of the Office of Environment and Heritage and Council have noted instances where voluntary purchase programs have been left out of floodplain risk management plans and communities have been unable to access the program following large flood events. There may also be a financial benefit to affected landholders as the voluntary purchase price offered by Council would not consider the impact of flood, whereas prospective private buyers would consider this impact.

To resolve the concern about the voluntary purchase program, it is recommended that the voluntary purchase program is retained in the FRMP and the scoping study undertaken, but that no further work proceed until community concerns can be adequately addressed. This could occur through education programs or following a shift in community opinion resulting from a more significant flood event sometime in the future.

The remaining options contained in the FRMP are generally well supported by the community. Therefore, it is recommended that Council adopt the FRMS and FRMP in its current form and applies for funding to undertake options identified as high and medium priority and the voluntary purchase scoping study.

Implications

Legal

Adoption of the FRMS and FRMP will enhance Council's 'good faith' defence in the event of any legal actions resulting from flooding in the Captains Flat area.

Policy

Adoption of the FRMP will require Council to update the Palerang Local Environmental Plan and Palerang Development Control Plan. As these are likely to be updated as part of the amalgamation process, this requirement is expected to have minimal impact.

Environmental

Environmental considerations are discussed in section 8 of the FRMS.

Limited environmental impacts will occur during construction of the structural works identified in the FRMP, but impacts will be minimal and will be managed using standard construction management techniques.

Asset

Adoption of the plan would result in changes to asset management practices in Captains Flat and the augmentation of some Council assets. Inclusion of the voluntary purchase will result in additional assets being acquired. Further discussion on this matter is contained in the body of this report.

Social / Cultural

Adoption of the FRMS and FRMP will generally improve social outcomes for the Captains Flat community in both the short and long term. The significant exception to this is the inclusion of a voluntary purchase program. While it is likely to have short term negative social and cultural impacts, it is considered that it will have overall positive benefits in the long term.

Economic

Adoption of the FRMS and FRMP will have positive economic benefits to the Captains Flat community through reduced flood damages.

Financial

Financial impacts and required budgets are discussed throughout this report and in section 14.1 of the FRMS. Subject to grants, one-third of the capital costs would be borne by Council.

	Estimated Capital Cost	Estimated Recurring Cost
Total Cost of Implementing the Plan (All options)	$7,481,400	$40,200
Total Cost of Implementing the Plan (High and Medium options only)	$2,681,400	$40,200
Total Cost of Implementing the Plan (High options only)	$1,063,000	$17,500
Total Cost of Implementing the Plan (Structural options only)	$1,868,400	$30,000
Total Cost of Implementing the Plan (Non-structural options only)	$5,613,000	$10,200
Total Cost of Implementing the Plan (Non-structural options only, excl. VP)	$813,000	$10,200

Resources (including staff)

Staff required for projects identified in the FRMP are expected to be sourced from the existing staffing pool.

Conclusion

Adoption of the FRMS and FRMP will be a significant step towards addressing concerns raised by the Captains Flat community following the December 2010 flood.

In general, the community is supportive of options contained within the report, however, there is limited community support for a voluntary purchase program.

Nonetheless, flooding is a significant risk to life in Captains Flat and a voluntary purchase project must be given serious consideration by Council.

As such, it is recommended that the FRMS and FRMP are adopted in their current form, but that the voluntary purchase program does not progress beyond the scoping study until there is sufficient support from the community.

Attachments

Attachment 1	Captains Flat Floodplain Risk Management Plan - Recommended Options *(Under Separate Cover)*
Attachment 2	Floodplain Management Program Guidelines for voluntary purchase schemes *(Under Separate Cover)*
Attachment 3	Attachment C1 (Confidential) - Captains Flat Preliminary Voluntary Purchase Sites *(Under Separate Cover)* - **CONFIDENTIAL**
Attachment 4	Draft Captains Flat Floodplain Risk Management Study (Cardno, October 2016) *(Under Separate Cover)*
Attachment 5	Draft Captains Flat Floodplain Risk Management Plan (Cardno, October 2016) *(Under Separate Cover)*