PRESENT

Cr Vanessa Keenan  
Wagga Wagga City Council
Patricia Murray  
Community Member
Ros Prangnell  
Community Member
Brian Mahony  
Community Member

IN ATTENDANCE

Cr Greg Conkey OAM  
Mayor
Peter Thompson  
General Manager
Craig Bromen  
State Emergency Services (SES)
Barry Griffiths  
State Emergency Services (SES)
Steve Manwaring  
Office of Environment and Heritage
Caroline Angel  
Director Commercial Operations
Janice Summerhayes  
Director Community
Peter Ross  
Manager Technical and Strategy
Darryl Woods  
Senior Project Manager
Mark Gardiner  
Manager Environment & City Compliance
Shaula Siregar  
Engineer - Water & Waste Assets
Kate Roberts  
Project Communications Officer
Adriaan Stander  
Strategic Planning Coordinator
Sam Robins  
Town Planner
Logan Robinson  
Cadet Engineer
Erin Askew  
WMAwater
Cath Goonan  
WMAwater
Maree Ingram  
Administration Coordinator (Minute Taker)

The meeting of the Floodplain Risk Management Advisory Committee commenced at 8.30am.

ACKNOWLEDGEMENT OF COUNTRY

I would like to Acknowledge the Traditional Custodians of this Land, on which this meeting takes place and to pay my respects to Elders past and present.

APOLOGIES

Cr Tim Koschel  
Wagga Wagga City Council
Cr Rod Kendall  
Wagga Wagga City Council
BA-1 GENERAL MANAGER UPDATE

**Recommendation:**
On the Motion of P Murray and R Prangnell

That the Floodplain Risk Management Advisory Committee receive and note the update provided by the General Manager.

The Committee received a verbal report from General Manager Peter Thompson in respect to a meeting between representatives from the North Wagga Residents Association and Council staff on 4 February 2019. A range of matters relating to flooding in North Wagga and the process underway to look at mitigation measures were discussed at the meeting.

Attendees at the meeting included the following:

<table>
<thead>
<tr>
<th>NWRA</th>
<th>Wagga Wagga City Council</th>
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<tbody>
<tr>
<td>Dan Grentell</td>
<td>Mayor - Cr Greg Conkey OAM</td>
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<tr>
<td>Geoff Conway</td>
<td>Cr Vanessa Keenan</td>
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<td>Maree Watt</td>
<td>General Manager - Peter Thompson</td>
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<td>Jenny Wood</td>
<td>Director Commercial Operations - Caroline Angel</td>
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<td>Robyn Dawson</td>
<td>Member for Wagga Wagga - Dr Joe McGirr</td>
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<td>Elaine Fruze</td>
<td>Project Engineer - Shaula Siregar</td>
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<td>Cheryl Conway</td>
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<td>Fiona Ziff</td>
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<td>Laurie Blowes</td>
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*Committee discussion held in respect to the meeting between North Wagga Residents Association and Council staff:*

A suggestion was made by the Chairman of the Committee to call expression of interest from interested stakeholders in the North Wagga floodplain to join the Floodplain Risk Management Advisory Committee as co-opted members similar to that proposed for the Villages Floodplain Risk Management Studies and Plans to help with the education and engagement of the broader community of the North Wagga Floodplain.
BA - 2 EXPRESSIONS OF INTEREST - CO-OPTED COMMITTEE MEMBERS

Recommendation:
On the Motion of R Prangnell and B Mahony

The Floodplain Risk Management Advisory Committee will call for Expressions of Interest from interested stakeholders from the North Wagga Floodplain community to join the Floodplain Risk Management Advisory Committee as co-opted members to assist with the education and engagement of residents within the broader North Wagga Floodplain community in respect to the processes involved with the development of the Flood Mitigation Option Feasibility Study for North Wagga and Floodplain Residents.

CONFIRMATION OF MINUTES

CM-1 MEETING MINUTES - 11 DECEMBER 2018

Recommendation:
On the Motion of B Mahony and P Murray

That the Minutes of the proceedings of the Floodplain Risk Management Advisory Committee Meeting held on 11 December 2018 be confirmed as a true and accurate record.

CARRIED

DECLARATIONS OF INTEREST

No Declarations of Interest were received.
REPORTS FROM STAFF

RP-1 PROJECT UPDATES

*Recommendation:*

On the Motion of B Mahony and R Prangnell

That the Committee

a receive and note the report

b endorse the inclusion of the additional recommendation for the Wagga Wagga Floodplain Risk Management Study and Plan, made at the 26 March 2018 Council meeting, as detailed in the body of this report

CARRIED

Discussion on the projects:

*Project 1753 - Wagga Wagga Major Overland Flow Flood (MOFF) Risk Management Study and Plan*

A presentation was made by WMAwater to the Committee on the progress of the MOFFRMS to date, including updating the MOFFS models to represent current conditions, tailwater sensitivity analysis, ARR2016 sensitivity assessment, and the flood damages assessment.

DW - Can you please confirm that flood pumps like 15a and those at Flowerdale Lagoon are not used in the modelling

CG - No pumps have been included in the modelling

EA - This decision was made based on the assumption that the pumps could fail.

DW - Even if we were to build redundancies into the pumps, they couldn't be considered?

SM - Can Council guarantee that they won't fail during power outages?

DW - Even if the mains fail the pumps have generator plug in capacity.

SM - This has not been considered before, will need to look at pump capacity.

DW - Looking at this, 15a has a very large capacity, will need to consider an upgrade of pumps at Flowerdale

SM - Need to err on safety side – have to look at worst case scenario.

DW - Flowerdale is a low lying area and water runs into the lagoon from the south and then out into residential areas to the north.
EA - There are no residential properties in these areas

DW - Council has been receiving a lot of calls from residents regarding insurance, especially in the Vestey Street area in relation to levels once the levee work has been completed. If the model is released as is there will need to be an explanation provided with the model on the assumptions made on which flood gates are open and which flood gates are closed.

EA - Floodplain levels need to be based on probable outcomes - based on conditions that exist now.

Note: This discussion related to the investigation into the appropriate tailwater level (i.e. in the Murrumbidgee River). The choice of tailwater affects flood depths in the city, as it determines how many levee pipe gates would be open or closed, thus controlling how floodwater (from local runoff) can drain from the city area behind the levee.

The investigation concluded that a 2 Yr ARI tailwater (i.e. 6.96 m at the gauge) should be used for all design flood events.

Cr Kennan – The manual gates/ automatic gates issue is similar to the pump discussion earlier.

EA – For a low flow riverine flood – all of the gates are open, the “low flow” riverine level is defined as a flat water level of 1.95 m at the gauge. At this level all levee gates are open (as per the current operational procedure)

Note: the flood model assumes that gates are either open or closed depending on the tailwater level and the current operating procedure. With the 2Yr ARI tailwater, 8 gates are assumed to be closed. It is noted that the modelling assumes no gates are accidentally jammed open or blocked with debris (though this is possible), as assuming that all levee pipes would be blocked would be a much too conservative and significantly overestimate flood depths behind the levee.

DW - Previously things have lodged in gate flaps, with the levee upgrade all gates will have non return flaps.

CG - Will gates 24 and 25 be non-return?

DW - Yes

EA - Gate closure timing in accordance with the current Wagga Flood manual - better operation procedures? WMAwater are looking at this as a way to improve flooding outcomes.

Cr Keenan - Are all floodgates to be upgraded?

DW - Ones that are in reasonable condition will not be, others to be assessed.

EA - Can you provide us with the details of the ones that are being changed?

DW - Yes
CA - The upgrading of the gates was not part of the original scope of the levee project. Requested that it be done due to the poor condition of some of the gates.

CG - WMAwater will come back to the committee on gate operational update.

**AR & R Sensitivity Analysis**

Initial work presented:

- WMAwater completed a sensitivity assessment to determine how peak flood levels would change if ARR 2016 methodologies were to be used instead of ARR1987. The assessment was based on guidance available at the time (in late 2018).
- The assessment found that results using ARR2016 methodologies were generally within +/- 50 mm of the ARR 1987 results, or up to 0.3 m lower (usually in non-developed areas of flood storage).
- The sensitivity assessment concluded that the study continue using the ARR1987 methodology, as the peak flood levels did not show a consistent bias to either methodology, and the ARR 1987 results, being higher in some parts, could be considered a conservative approach.

Discussion on issues with ARR2016 catchment losses in relation to the Data Hub:

- WMAwater were engaged by OEH to formulate guidelines to guide Councils on how to use the ARR2016 inputs. The guidelines are available on the OEH website.
- The new guidance was developed in response to work that found that the losses originally prescribed in the ARR 2016 Data Hub were overly high, which causes lower flood levels as more rainfall would infiltrate into the soil rather than contribute to flooding as runoff. The new guidance now requires continuing losses (derived from the ARR 2016 Data Hub) to be multiplied by a factor of 0.4, and that probability-neutral burst initial losses are to be used.
- This guidance was released in late January 2018, after the MOFFRMS ARR2016 Sensitivity assessment had been completed.
- Re-doing the assessment in accordance with new guidance involves a significant amount of work, involving many (hundreds) model runs and significant processing required for each design event and storm duration.
- EA - ARR2016 methodology is still evolving – what is State Gov/OEH comfortable with?
- SM - OEH generally encourages use of ARR 2016 methodologies as it is current best practise, gives the models greater longevity, and may help avoid challenges from developers in the future.
- EA - note that ARR2016 is designed to be used with ARR2016 inputs (not using losses derived from ARR1987 in combination with other inputs from ARR2016 Data Hub for example – becomes complicated when considering use of
‘calibrated losses’. This does not apply here as the overland catchment models do not use calibrated losses (no stream gauge to calibrate to).

- RP - Public would be asking why Council is using [ARR] 1987 guidelines

- SR - Consider future flood impact assessments - would these be done in ARR1987 or ARR2016? ARR1987 not as defensible – could be challenged by developers who commission their own flood studies using ARR2016.

Resolution:

- With lower (factored) continuing losses, design peak flood levels produced using the revised ARR 2016 methodologies (and OEH guidance) could produce peak flood levels higher than those produced using ARR 1987 – Council and OEH need to know if this is the case before deciding which method to continue with.

- Re-do the sensitivity assessment using revised guidance for the 1% AEP event only, then present to Council and OEH to decide how to proceed.

- It is noted that this will delay producing design flood results, which are needed for the flood damages assessment, discussions regarding the FPA/FPL and assessment of mitigation options. However, other items (emergency response for example) could be progressed in parallel.

Flood Damage Assessments

Planning is the next step, WMAwater to engage with Council Planners and Council responders who are responsible for closing of roads, putting up of signs during flood events.

Questions:

S Robins - Is the current 150ml depth exclusion going to be the same logic for identifying flood planning level?

EA - This is up for discussion, WMAwater to provide a few options.

S Robins - There is a problem with the existing model in that it has issues when the buildings are blocked out due to the scale of the model, can this be addressed?

CG - LiDAR can be filtered to get rid of buildings to develop a digital elevation model. The Riverine model did not null out buildings, rather these were incorporated in the DEM using information from LiDAR. In the overland model, buildings are nulled out of the model to represent the obstruction they cause to overland flow.

SR – Need to have maps showing everywhere that is flooded regardless of buildings or no buildings

CG - We can smooth out floodplain areas, then use most appropriate area - interested in how water runs around buildings
SR - East Wagga – parts of east wagga are not impacted by 5% riverine flood but is impacted by the MOFFs 1% should we be imposing controls for the 1% MOFFs or do we need a 5% MOFFs? No response recorded to the above.

GC - Lake Albert is one of WMAwater's major concerns. Keeping Lake Albert full for recreation use - what effect will this have on flooding. May need a subcommittee down the track. Will start on some mitigation options.

SM - To maintain full supply level of the Lake you may need to build a structure downstream for surcharge. This was raised in a previous model.

P R - On the slide showing drainage paths in Wagga (table drains) Glenfield Drain is not shown.

CG - The example shown is from the Wagga North model domain. The Glenfield Drain has been captured in the City domain. Can any photos and videos of the recent storm event be supplied to WMAwater?

SES - Currently undertaking a long term project - Response Planning - will involve Council/Community. Looking at new format for Flood plans - will look for involvement from Council.

Cr Keenan - Public Exhibition for the plan is scheduled for Sept/Oct., is there any chance of consultation with most affected stakeholders?

CG - Some consultation has already been done. The FRMA Committee will need to help with this. Community representatives to help communicate progress. Submissions have been received and follow up calls made. Need to keep the lines of communication open, draw on community connections more.

Cr Keenan - Why is there a separate report for Lake Albert?

CG - It formed part of the brief for the study at the time.

EA - There is pressure to further release land for development in Lake Albert area that is highlighted as a special area.

Project 1793 - Main City Levee and North Wagga Levee

Works are progressing as scheduled. There has been some pressure from the community in respect to access to Cadell Place and parking adjacent to impacted businesses. Timed parking alterations will be made. Staff have been engaging with affected businesses. Continued progress of the project will be weather dependant.

Project 2000 - Wagga Wagga Revised Floodplain Risk Management Study and Plan

There is confusion in respect to properties inside North Wagga levee and their eligibility for house raising assistance if North Wagga levee raised to 1 in 100 year.

Cr Keenan - There is potential for a combination.
SM - That is okay for the development of the scope until you get to the combined options. Serious consideration needs to be given to how the combination of Voluntary House Railing/Voluntary House Purchase and the raising of the levee can be achieved.

Cr Keenan - Raise the levee or do Voluntary programs - is the solution a mixture of both?

SM - Can possibly do Voluntary House Raising as a project not as a scheme, however not all houses can be done at once for varying reasons.

CA - In finalising the last study, SES representatives placed emphasis on access as there is a false sense of safety in the community if the levee is increased. Floods at Lismore provided good evidence of people who thought they were safe.

EA - Substantial upgrade will be required for a 1 in 100 year levee - in some places this would be up to 900mm.

CA - Residents may not be aware of what the visual impact would be if the North Wagga levee went to a 1 in 100 year level

Cr Keenan - We need to get the community involved to make them aware of this

SM - A draft for the scope of the project will tabled at the next meeting.

*Project 18640 - Wagga Wagga Villages Floodplain Risk Management Study and Plan*

Information packs in respect to the EOIs for co-opted members to be emailed to Committee members.

**QUESTIONS/BUSINESS WITH NOTICE**

**BWN-1** Steve Manwaring - A new round of OEH grants have opened today. Council are encouraged to apply again for funding for projects that previous applications have been unsuccessful for such as Mangoplah and to submit applications for any newly identified projects.

The Floodplain Risk Management Advisory Committee rose at 10.40am.