City of Ryde

Macquarie Park Floodplain Risk Management Study & Plan

The November 1984 flood is the largest known flood in the study area.
This photo shows conditions in Ford Street, North Ryde

Final Report
February 2011

Bewsher

CITY OF RYDE

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Report of City of Ryde's
Macquarie Park Floodplain Management Committee, prepared by

Prepared by:
Bewsher Consulting Pty Ltd
6/28 Langston Place, Epping NSW 2121 Australia
P O Box 352, Epping NSW 1710 Australia
Telephone: (02) 9868 1966. Facsimile: (02) 9868 5759
Web: www.bewsher.com.au E-mail: postmaster@bewsher.com.au
ACN 003137068. ABN 24 312 540 210

FOREWORD

In New South Wales the prime responsibility for local planning and the management of flood liable land rests with local government. To assist local government with floodplain management, the NSW Government has adopted a Flood Prone land Policy in conjunction with the *Floodplain Development Manual*.

The Policy is directed at providing solutions to existing flood problems and to ensure that new development is compatible with the flood hazard and does not create additional flood problems.

The Policy sets out four sequential stages in the development of a floodplain management plan:

1	Flood Study	- Assessment to define the nature and extent of flooding.
2	Floodplain Risk Management Study	- Comprehensive evaluation of management options with respect to existing and proposed development.
3	Floodplain Risk Management Plan	- Formal adoption by Council of a management plan for floodplain risks
4	Implementation of the Plan	- Measures undertaken to reduce the impact of flooding on existing development, and implementing controls to ensure that new development is compatible with the flood hazard.

This Floodplain Risk Management Study and Plan constitutes the second and third stages of the management process for Macquarie Park and has been prepared for the City of Ryde by Bewsher Consulting Pty Ltd.

In broad terms, this Floodplain Risk Management Study has investigated what can be done to minimise the effects of flooding in the Macquarie Park study area and has recommended a strategy in the form of a Floodplain Risk Management Plan.

The City of Ryde has commissioned the study with financial assistance from the NSW Government through the Department of Environment, Climate Change and Water (DECCW). This document does not necessarily represent the opinions of the NSW Government or the Department of Environment, Climate Change and Water.

The assistance of the Floodplain Risk Management Committee, Council and DECCW officers in preparing this report is gratefully acknowledged.

Council adopted this report on 1 February 2011.

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EXECUTIVE SUMMARY

Bewsher Consulting Pty Ltd are specialist flood risk management consultants who were commissioned by the City of Ryde, with financial assistance from the Department of Environment, Climate Change and Water (DECCW), to prepare a Floodplain Risk Management Study and Plan for the Macquarie Park study area. This area consists of the Mars Creek, Shrimptons Creek, Industrial Creek, Porters Creek and Lane Cove catchments, as well as the floodplain of the Lane Cove River itself downstream from Fullers Bridge next to River Avenue.

The study was overseen by the Macquarie Park Floodplain Risk Management Committee, which includes councillors and staff from the City of Ryde, officers from DECCW, the State Emergency Service (SES), the Transport Construction Authority (formerly the Transport Infrastructure Development Corporation), AMP Capital (owners of Macquarie Shopping Centre), Macquarie University, Macquarie Goodman, and a number of community representatives.

Principal Outcomes

The principal elements of this study include:

- A description of the study area including a history of flooding (**Chapter 2**);
- A summary of the community consultation undertaken for this study (**Chapter 3**);
- A summary of the *Macquarie Park Flood Study*, the estimation of Flood Risk Precincts and an Overland Flow Precinct used for planning and development control, and the report of a climate change sensitivity test (**Chapter 4**);
- Definition of the flood problem by construction of a Flood Damages Database, which quantifies flood damages and records information on existing potentially flood affected properties within the study area; it was found that 101 dwellings are subject to mostly shallow above-floor inundation in the 100 year event; the average annual damages are calculated as $3.9M (**Chapter 5**);
- A detailed evaluation of potential floodplain management measures to reduce flood damages to existing development (**Chapter 6**);
- A recommended Floodplain Risk Management Plan (FRMP) for the Macquarie Park catchments (**Chapter 7**).

The Floodplain Risk Management Plan

The Macquarie Park FRMP is presented in **Table 7.1** and **Figure 7.1**. The recommended measures have been selected from a range of available measures, after an assessment of the impacts of flooding, as well as environmental, social and economic considerations.

The recommended measures have been categorised into high, medium-high, medium, medium-low or low priorities, which reflects the ease with which the measure can be implemented and the value for money:

<u>High Priority</u>

- Maintain integrity of existing Dunbar Park detention basin;
- Scoping study to assess feasibility of enlarging detention basin in Macquarie Uni to improve Talavera Road drainage at University Creek;
- Routinely maintain drainage pits, especially in the catchment above the Doig Avenue shops;
- Brendon Street sag point works;
- Rehabilitate Shrimptons Creek riparian corridor;
- Study to address micro-scale influences on inundation regime at Rogal Place/ Fontenoy Road/ Tuckwell Place, Macquarie Park;
- Remove shrubs from entrance to 'Officeworks' culvert inlet and maintain as short grass cover *(property owner)*;
- Arrange MOU between SES, Council and Hills Motorway to ensure emergency access to and from SES LHQ via Porters Creek Depot *(SES)*;
- Continue and promote the River Avenue VP scheme, and remove three dwellings with a high flood risk from the floodplain *(Office of Strategic Lands)*;
- Arrange MOU between SES and Northern Suburbs Crematorium to ensure emergency access to River Avenue via Quebec Road *(SES)*;
- Add planning matrix for Macquarie Park to draft floodplain management DCP provisions;
- Prepare City of Ryde Local Flood Plan *(SES)*;
- Prepare Macquarie University Flood Emergency Plan *(MU)*;

- Prepare Macquarie Shopping Centre Flood Emergency Plan *(AMP Capital)*; and
- Consolidate flood data into Council's GIS.

Medium-High Priority

- Overland flow works in Danbury Close/Herring Road area including VP of one property; and
- Prepare a brochure summarising potential flood-proofing techniques and distribute.

Medium Priority

- Improve Waterloo Road drainage by lowering downslope ground levels;
- Create detention basin at Waterloo Park;
- Improve Epping Road drainage at Mars Creek by lowering median strip and downslope verge;
- Improve Epping Road drainage at University Creek by lowering median strip;
- Overland flow works in Santa Rosa Park;
- Create detention basin at North Ryde Golf Club;
- Overland flow works at rear of Peachtree Road units;
- Consider opportunities to increase conduit capacity through Macquarie Centre during redevelopment;
- Install debris control structure upstream of Shrimptons Creek culvert at Waterloo Road;
- Improve Pittwater Road drainage by lowering downslope ground levels;
- Invite owners of two properties to redevelop in flood-compatible manner with $50K Government subsidy;
- Provide flood certificates at regular intervals; and
- Prepare FloodSafe brochure for Macquarie Park *(SES)*.

Medium-Low Priority

- VP five properties upslope of Epping Road flyover embankment and redevelop; and
- VP at least four properties upslope of Epping Road at Porters Creek and redevelop.

Low Priority

- Improve Talavera Road drainage at Mars Creek by drainage upgrade;
- Overland flow works in Rocca Street including VP of one property;
- Formalise Industrial Creek overland flow paths during redevelopment;
- Upgrade drainage between Officeworks and M2 during redevelopment; and
- Formalise Porters Creek overland flow paths during redevelopment.

Funding

The total capital cost of implementing the Plan is estimated to be $10.7M, with $65K annual maintenance costs. The timing of proposed works will depend on overall budgetary commitments of Council and the availability of funds from other sources. It is envisaged that the Plan would be implemented progressively over a 5 to 10 year time frame.