

Stormwater Flooding in Bankstown – The Hidden Threat

An Innovative Approach to Managing the Risk

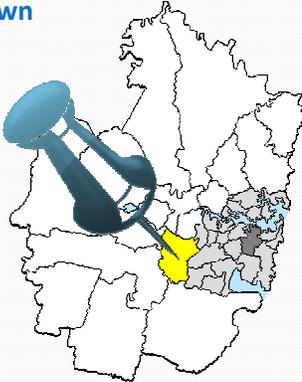
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Acknowledgements



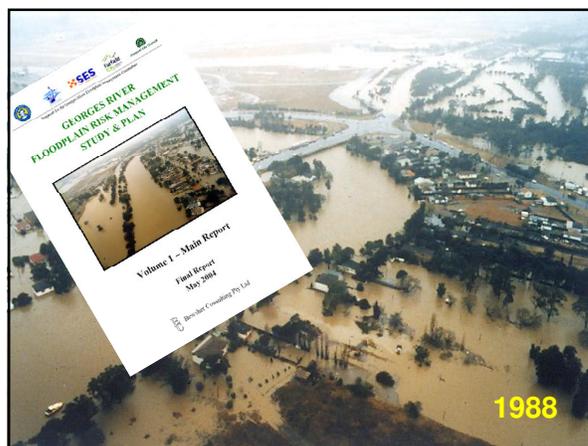
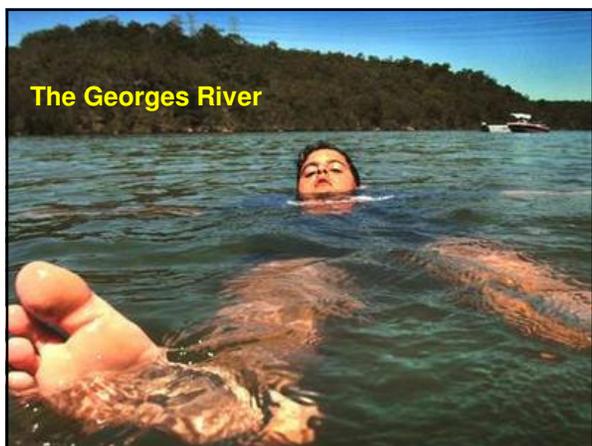
Bankstown



Bankstown



The Georges River



**GEORGES RIVER
FLOODPLAIN RISK MANAGEMENT
STUDY & PLAN**

Volume 1 – Main Report
Final Report
May 2004
Bankstown Council Pty Ltd

1988

Stormwater

- 21 stormwater catchments occurring in 5 major catchments

Incomplete flood records

Stormwater - Why start undertaking flood studies and risk management plans?

Three main motivators:

1. The Metropolitan Strategy



2. Bankstown Residential Development Strategy

Centres 60%

Infill 40%

3. State Environmental Planning Policy – Exempt and Complying Developments Code – the Housing Code

- Changes made to accelerate the uptake of Complying Development across the state.
- Complying development permitted in lots meeting the five 'land based requirements' including not being defined as a flood control lot.

➤ Final catalyst for accelerating the existing flood study program and initiating the risk management program.

Generic Process

When to:

- Send reports to Council
- Update s149 certificates
- Consult with the community

Outcomes:

- Consistency of approach
- Streamlined transition from flood study to risk management plan

Stormwater Flood Studies



- Stormwater management
 - Long history / significant investment of modelling / designing
 - Focused on network's design performance (e.g. 1 to 5 year ARI)
 - Efforts to investigate exceedance risks
 - Limited by traditional 1D network hydraulic software
- Advances in data (topo & asset), software, hardware
 - Better representation of overland flow in complex urban areas
 - Broadening of Flood Studies to include stormwater
 - Address through holistic risk management process



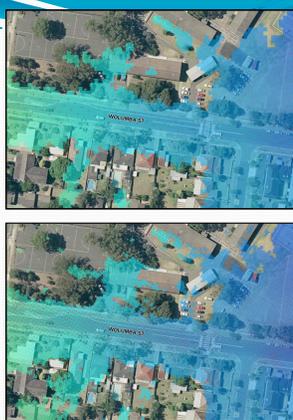
Bankstown City Council and TUFLOW

- Bankstown City Council
 - Closely followed this evolution
 - 2003 DRAINS + TUFLOW
 - 2004 MIKE-STORM + TUFLOW
 - 2005+ TUFLOW fully integrated
- TUFLOW
 - Originally developed for fluvial applications
 - Early 2000's extensive R&D to incorporate stormwater modelling functionality
 - First application in Bankstown
 - Significant role in ongoing software development
 - Maximise useability, efficiency, tailored outputs



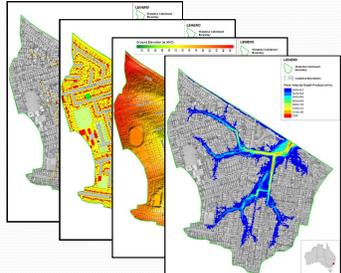

The Challenges

- Schematisation
 - Direct rainfall
 - Grid size
 - Simulation management



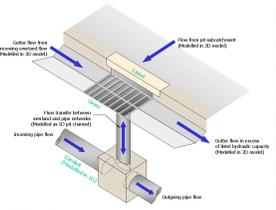
The Challenges

- Terrain, Buildings, Obstructions
 - DEM development
 - Land use
 - Buildings
 - Fences



The Challenges

- Stormwater network and hydraulic structures
 - Asset database
 - Pit inlet curves
 - Irregular shaped culverts
 - Pit blockage
 - Pit search distances
 - Automatic manhole losses
 - Debris blockage




Summary of 2011 Consultation Statistics

Activity	Total
Letters / Questionnaires sent	~6000
Questionnaires Returned	855 (15%)
Community Information Sessions held	11
Attendance at forums	170



Community Survey Snapshots

Flood Beliefs
69% did not believe that a flood could occur at their property

Flood Preparedness
60% would not know how to protect themselves in a flood
84% were interested in receiving further information about flooding.



Main Recommendations of the Plans:

- Some structural flood mitigation works which will result in improvements for some properties.
- Continue to apply land use planning and flood related development controls, with some refinements.
- Begin working with the community and SES in the design and implementation of flood education programs.

Strategic Planning Outcomes

- Flood characteristic information used in Councils strategic planning.
- Information is available on website to support complying development in LGA.



Conclusions

1. Provision of Consistent and Comprehensive Information across the 21 stormwater catchments
2. Tailoring of Outputs to Councils needs has played a significant role in the development of the software and its features

Conclusions

3. Efficient usage of Council time and financial resources
 - Allowing flood studies to be produced rapidly
 - Allowing risk management plans to be prepared on a major catchment basis.
4. Facilitating Confidence in Flood Mapping and Risk Management Measures